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OFFICIAL ORGAN OF THE NORTHWEST FRUIT GROWERS ASSOCIATION

VOLUME FOUR

NUMBER EIGHT

DOLLAR A YEAR

# BETTER FRUIT

*February 1910—Special Spraying Edition*

*Published by BETTER FRUIT PUBLISHING COMPANY, Hood River, Oregon*

LIBRARY

RECEIVED

FEB 18 1910

U. S. Department of Agriculture.



YELLOW  
NEWTOWNS  
grown at  
Hood River.  
The smaller size  
is preferred in  
England, the  
larger in  
United States.  
The reproductions  
were made from  
the apples direct.

# SAVINGS MEAN PROFIT!

WHY BUY A MORE EXPENSIVE ORCHARD HEATER THAN THE **TROUTMAN** AND BE AT AN ADDITIONAL EXPENSE OF \$8 TO \$10 PER ACRE EACH SEASON ON ACCOUNT OF GREATER CONSUMPTION OF OIL?



## The Troutman Orchard Heaters

Are the most efficient and economical on the market. THE TROUTMAN HEATERS are supplied with a center draft, which feeds oxygen, already heated, to the burning fuel, which creates a greater amount of heat for the amount of fuel consumed. This draft makes these Heaters fifty per cent more efficient than any other device.

ORDERS ACCEPTED BY WIRE THROUGH BANKS

Telegraphic address, 703 Symes Building, Denver, Colorado

The time to equip your orchard against frost is here. Which heater will you use? Buy the best; don't be misled. You want a heat producer; not merely an "oil eater."

### THE LAST WORD

As our navy is to the country, so is orchard heating to fruit growing "THE GREATEST PROTECTION." And as the battleships are to the navy, so are the Troutman Heaters to orchard heating "THE MIGHTIEST POWER."

FOR FULL INFORMATION AND QUICK SERVICE ADDRESS

**The Round Crest Orchard Heater Co.**

**Canyon City, Colorado**

## WHAT APPLE LAND IS WORTH

Under a reliable water system and with proper conditions of soil, climate, transportation, and air drainage, the results that are being obtained where proper management is given are startling.

The following table is a very conservative estimate of the returns on our irrigated land when in bearing and under reliable handling:

No. of Trees	Age of Trees	Boxes per Tree	Total No. Boxes	Net Profit Per Box	Approx. Net Income	Per Cent on \$400 Value	20 Per Cent Income on What Acre Valuation
80	4	1	80	\$1.00	\$ 80.00	20%	\$ 400.00
80	5	2½	200	1.00	200.00	50%	1,000.00
80	6	4	320	1.00	320.00	80%	1,600.00
80	7	6	480	1.00	480.00	120%	2,400.00
80	8	8½	680	1.00	680.00	170%	3,400.00
80	9	10	800	1.00	800.00	200%	4,000.00
80	10	12	960	1.00	960.00	240%	4,800.00

## SPOKANE VALLEY IRRIGATED LAND

GREENACRES OTIS ORCHARDS OPPORTUNITY EAST FARMS WEST FARMS  
EAST GREENACRES PASADENA

Comprising thousands of acres of choice irrigated land adjoining Spokane

FINEST COMMERCIAL ORCHARDS ARTISTIC SUBURBAN HOMES

NEAR THE CITY ON THE ELECTRIC LINE MANY RAILROADS

The most picturesque valley in the world With every modern convenience

Our prices are still far below the older fruit districts. Our terms easy  
A few more apple crops will put the Spokane Valley on a par with the best districts

Our other advantages will put it ahead of them all

Let us send you our booklet showing homes and orchards and giving facts about winter apples

**SPOKANE VALLEY IRRIGATED LAND COMPANY, Inc.**

401 SPRAGUE AVENUE

SPOKANE, WASHINGTON



# A Revolution in Spraying!

APTERITE, THE NEW SOIL FUMIGANT

HIGHLY  
CONCENTRATED  
RELIABLE  
AND  
EFFECTIVE  
CLEANSE AND  
INVIGORATE



NO SEDIMENT  
NO CLOGGING  
MIX INSTANTLY  
WITH  
COLD WATER

## Read Hood River's Testimony

Mr. C. G. Roberts:

In response to your request for results in using Cooper's Sprays last season, I have to inform you that it was a success, and am so well satisfied that I propose to use nothing else during the coming season, and confidently recommend its use to my neighbors in Hood River and fruit growers generally. The V1 or winter spray is most convenient and clean handling, and cleaned up my trees from loose bark and insects or eggs which may have harbored therein. The summer spray, V3, destroyed codling moth, the brown aphid, and, so far as I know, the spores of fungus, as my apples ripened almost free of imperfection, ready for packing, as I did not require to wipe them, as usual by other sprays.

L. D. Boyd.

Hood River, Oregon, November 9, 1909.

Hood River, Oregon, November 18, 1909.

This is to certify that I used Cooper's V1 Spray for fungus, according to directions, on six acres of Newtowns last March, of which last year was about 20 per cent fungus, this year not more than one per cent. The spray is easy to prepare and very agreeable to apply, and I consider it the most economical spray I ever used. I use the finest nozzle, with a high pressure, and choose a quiet day for spraying to get the best results.

O. M. DeWitt.

Hood River, Oregon, November 17, 1909.

In regard to the Cooper Spray, in answer to your inquiries as to what success I have had with it, will say that I have been somewhat worried about fungus on my apples for several years until last year, when I used V1 for winter spray, and am well pleased with results, as my apples were almost entirely clean of fungus this season. Shall try it again the coming season.

J. R. Crosby.

Hood River, Oregon, November 17, 1909.

I used the Cooper Spray V1 for fungus and can say that I am well pleased with its results. On a crop of about 300 boxes of apples I had only about one box that was affected with fungus. As for convenience, I can recommend it ahead of any other spray I ever used. My trees were affected but very little with aphid after using the V1.

J. H. Eggert.

Mr. C. G. Roberts:

I have used the Cooper Winter Spray and it put my trees in fine and healthy shape. I consider it a very economical spray and pleasant to handle, not hurting the hands nor having the disagreeable effect on the hands and face of the sprayer of the lime and sulphur sprays.

E. C. Mahaney.

Hood River, Oregon, November 20, 1909.

Mr. C. G. Roberts:

Dear Sir—In answer to your inquiry about results from the use of Cooper's Spray, will say that my apple orchard had become badly infested with fungus. I made one application of V1 spray early in March, while the trees were yet dormant, with results that my apple crop is practically free from that disease. It also cleansed the trees of moss and other objectionable growths. I am so well pleased with results that I shall use it again next year.

Yours very truly,

M. D. Odell.

Hood River, Oregon, November 17, 1909.

Hood River, Oregon, November 20, 1909.

Mr. C. G. Roberts:

I have used three gallons of winter spray, the Cooper V1, on my orchard and the orchards near mine that I am caring for. I find it the best spray I ever used, as it cleaned my trees of scale and fungus and put the trees in the most healthy condition. This spray is pleasant to handle, having none of the objectionable qualities of lime and sulphur spray, and I consider it the most economical I ever used. I recommend it to my neighbors and fruit growers generally.

L. A. E. Clark, Pippin Hill Fruit Farm.

Hood River, Oregon, November 20, 1909.

C. G. Roberts, General Agents Cooper's Spray:

Dear Sir—I used V2 fluid, or summer spray, this spring, for green aphid, and got very satisfactory results; in fact, as good as any other kind I ever used.

Yours truly,

A. D. Moe.

Hood River, Oregon, November 13, 1909.

I will say that I have tried the Cooper Summer Spray and it cleaned my trees from the green aphid as good as any spray I have had experience with.

E. N. Benson.

Hood River, Oregon, November 20, 1909.

This is to certify that I have used the Cooper Spray, V2, on my orchard and it cleared it of green aphid and fungus and put the trees in healthy condition.

Louise J. Schiller.

I hereby certify that I used the Cooper Spray once in the spring and the trees showed marked improvement.

Charles Davis.

Hood River, Oregon, November 27, 1909.

This is to certify that I have used Cooper's Tree Spray Fluids, V1, for killing San Jose scale and found it very effectual.

G. R. Castner, County Fruit Inspector.

Write for 32-page booklet (third edition) just published

Containing much interesting matter, also testimonials from many other fruit growers

C. G. ROBERTS

247 Ash Street Portland, Oregon

LOCAL OREGON AGENTS

D. McDonald, Hood River

Maier & Shannon, The Dalles

F. H. Churchill, Roseburg

H. Dyer & Co., Myrtle Creek

M. Brown & Co., Salem

Glen Fabrick, Medford

Sole Manufacturers:

WILLIAM COOPER AND NEPHEWS, 64 West Illinois Street, Chicago, Illinois

# THE PROOF OF THE PUDDING

We cite this letter from Steinhardt & Kelley, of New York City (the largest dealers of fancy apples in America), as unquestioned proof of the value of HOOD RIVER soil and the superiority of HOOD RIVER apples

New York, October 11, 1909.

Hood River News,

Hood River, Oregon.

Dear Sir: \* \* \* The highest price we ever paid for apples and the highest price that has ever been paid for apples up to this writing was paid for some varieties Hood Rivers, nor do we think that any apples that we could purchase anywhere else would be worth the price that we paid for these Hood Rivers.

Merely as an instance of the big price we paid for the fruit of the Hood River Valley, suffice it to say that some of the apples we purchased from the Union cost us, landed in New York, almost eight cents for each apple by the carload. This we consider was the highest price ever paid in the history of the fruit trade for any block of fruit. \* \* \*

Yours faithfully,

STEINHARDT & KELLY.

Every man is interested in knowing more about HOOD RIVER. We have just issued a beautiful booklet about this section. It is worth fifty cents per copy, we will send it free if you will write immediately and mention "Better Fruit"

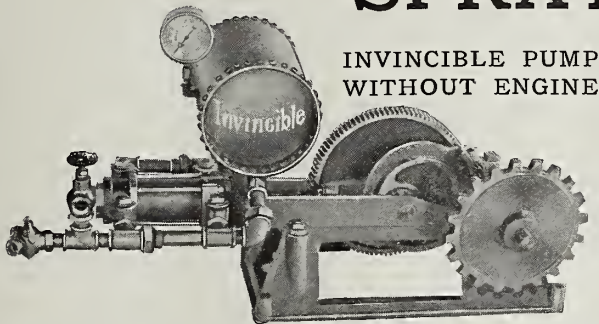
ADDRESS

Secretary Hood River Commercial Club

Hood River, Oregon

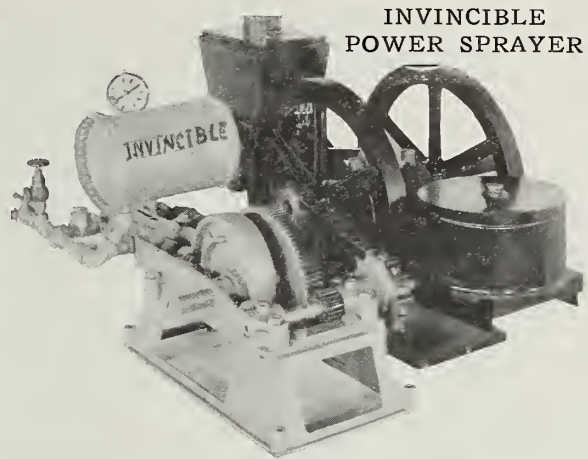


# A NEW WALLACE SPRAYER



INVINCIBLE PUMP  
WITHOUT ENGINE

AGENTS  
WANTED  
EVERY-  
WHERE



INVINCIBLE  
POWER SPRAYER

For the benefit of those fruit growers who want just a plain, durable, large capacity sprayer, which will do modern, high-pressure spraying, but have no unnecessary trimmings, we build this Invincible Power Sprayer. Engine is strong  $2\frac{1}{2}$ -horsepower, hopper cooled, horizontal; plain, simple and reliable. Pump is the Wallace Invincible Cam Pump, the simplest and most compact independent pump yet. It is driven by a cam, making it positive and powerful, with no slipping of belt. *A most pleasing combination, having our highest guarantee.* Its low price should not confuse it with the toy outfits heretofore offered at low prices. It is man's size.

**PRICES**—In order to introduce this outfit quickly in every fruit-growing section, we will furnish for sixty days at the following prices:

Engine and pump mounted on wood base, with battery, exhaust muffler, pressure gauge, relief valve and hose valve, three feet of suction hose with strainer, two 25-foot lengths of  $\frac{1}{2}$ -inch high pressure spray hose, two 8-foot brass lined bamboo rods with our leakless valves, and nozzles of any style desired, neatly painted, crated and delivered f.o.b. cars, our factory, weight 800 pounds crated.....\$160.00

The above and a 200-gallon supply tank, with agitator, on sills, all connected up, ready to set on any truck.....185.00

The whole, mounted on our regular farm truck.....210.00

Buy one of these and if it does not prove equal to any sprayer you know of (except our Peerless, which has no equal), your money back without a word.

In writing mention the *Invincible*, and state where you saw this ad. Ask also for our new book, *SPRAYOLOGY*. It treats of a line of machines which have no equal in any half dozen other factories put together.

## AMERICAN SPRAYER CO.

Succeeding Wallace Machinery Co. and American Sprayer & Supply Co.

Formerly Champaign, Illinois

Builders of Wallace Sprayers

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# European Receivers of American Fruits

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204 Franklin Street, New York

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OUR SPECIALTIES ARE APPLES AND PEARS

## Pearson-Page Co.

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PORTLAND, OREGON

Superior facilities for handling

PEACHES  
APPLES AND  
PEARS

Solicit Your Consignments

Reliable Market Reports Prompt Cash Returns

## Stanley-Smith Lumber Co.

WHOLESALE AND RETAIL

LUMBER

Lath, Shingles, Wood, Etc.

Hood River, Oregon

## FRUIT

Western  
Soft Pine.  
Light, strong  
and durable.

"Better Fruit"  
subscribers  
demand the  
"Better Box."

## BOXES

CAN MAKE TWO CARLOADS DAILY

## WASHINGTON MILL CO.

Wholesale Manufacturers

Spokane, Washington

## Richey & Gilbert Co.

H. M. GILBERT, *President and Manager*

Growers and Shippers of  
**YAKIMA VALLEY  
FRUITS AND PRODUCE**

**Specialties: Apples, Peaches  
Pears and Cantaloupes**

TOPPENISH, WASHINGTON

## RYAN & VIRDEN CO.

BUTTE, MONTANA

*Branch Houses:*  
Livingstone, Billings, Sheridan,  
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**Wholesale Fruit and Produce**

WE HAVE MODERN COLD STORAGE FACILITIES  
ESSENTIAL FOR HANDLING YOUR PRODUCTS

*A strong house that gives reliable market  
reports and prompt cash returns*

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*Incorporated*

**WHOLESALE  
FRUITS AND  
PRODUCE**

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## PORTLAND BROKERAGE CO.

Consignments solicited with quick returns

**FRUITS, PRODUCE  
BUTTER AND EGGS**

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206 Stark St., Portland, Oregon  
Between Front and First Streets

## FAMOUS HOOD RIVER APPLES

Spitzenbergs, Newtowns, Jonathans  
Arkansas Blacks, Ortleys, Wine-  
saps, R. C. Pippins, Baldwins,  
M. B. Twigs, Ben Davis

**Look Good, Taste Better, Sell Best**

*Grade and Pack Guaranteed*

**Apple Growers' Union**  
Hood River, Oregon

## H. WOODS CO.

**WHOLESALE FRUITS  
and  
COMMISSION**

Apples, Peaches and Strawberries

127 South Water Street  
CHICAGO, ILLINOIS

## Levy & Spiegel

WHOLESALE

**FRUITS & PRODUCE  
Commission Merchants**

SOLICIT YOUR CONSIGNMENTS

Top Prices and Prompt Returns  
PORTLAND, OREGON

## FAMOUS HOOD RIVER Strawberries

THE FINEST  
BERRY ON EARTH AND  
THE BEST SHIPPER

Look Good, but Taste Better

*Fancy Pack Guaranteed*

**FRUIT GROWERS' UNION**  
Hood River, Oregon

## Mark Levy & Co.

COMMISSION  
MERCHANTS

**WHOLESALE FRUITS**

121-123 FRONT AND  
200 WASHINGTON ST.  
PORTLAND, OREGON

## O. W. BUTTS

**Wholesale Fruits  
and Commission**

STRAWBERRIES AND APPLES

*Our Specialty*

*A Strong House, Pioneer Dealer  
of Thirty Years' Experience*

OMAHA, NEBRASKA

IF YOU WANT TO  
MARKET YOUR

## FRUIT

RIGHT

ALWAYS SHIP TO

**W. B. Glafke Co.**

**WHOLESALE FRUITS  
AND PRODUCE**

108-110 Front Street  
PORTLAND, OREGON

W. H. Dryer

W. W. Bollam

## Dryer, Bollam & Co.

**General  
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Merchants**

128 FRONT STREET  
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## SGOBEL & DAY

NEW YORK

APPLES, PEARS, PRUNES

**QUALITY  
QUALITY  
QUALITY**



## MCEWEN & KOSKEY

*Wholesale Fruit and Produce and  
General Commission Merchants*

129 Front Street, Portland, Oregon

### CONSIGNMENTS

Are solicited, all your shipments  
receiving our personal attention

## Stranahan & Clark

DEALERS IN

Commercial Fertilizers  
Land Plaster, Lime  
Plaster Paris, Cement  
Building Plasters  
HOOD RIVER, OREGON

## Davenport Bros.

Portland, Oregon

WHOLESALE  
FRUIT &  
PRODUCE

*Growers and Shippers of the Famous*

**Mosier Valley Fruits**

## Ryan & Newton Company

Wholesale Fruits & Produce

Spokane, Washington

We have modern cold stor-  
age facilities essential for the  
handling of your products

*Reliable Market Reports*

PROMPT CASH RETURNS

## YAKIMA COUNTY HORTICULTURAL UNION

North Yakima, Washington

C. R. Paddock, Manager

Apples, Pears, Peaches, Cherries,  
Plums, Prunes, Apricots, Grapes  
and Cantaloupes

Mixed carloads start about  
July 20. Straight carloads in  
season. Our fruit is the very  
best grade; pack guaranteed

We use Revised Economy Code

## LINDSAY & CO. LTD. Wholesale Fruits

HELENA, MONTANA

*Established in Helena Quarter of a Century*

Branch houses: Great Falls, Mis-  
soula and Billings, Montana

## APPLES IN BOXES

We solicit consignments of best red varieties for  
Hamburg, which is the biggest market on the  
continent of Europe for foreign fruit

WE USE MODERN ECONOMY CODE

BEST VALUES, QUICKEST RETURNS  
AND PERSONAL ATTENTION

**J. H. LÜTTEN & SON**

Established 1835

CABLES: LUTTENSON HAMBURG, GERMANY

CALDWELL APPLE BELT

## Canyon County, Idaho

*THE HOME OF THE PERFECT JONATHAN*

We are the owners of the prize-winning apple orchard  
of the United States, having won seven individual prizes  
out of a possible eight at the National Horticultural Con-  
gress at Council Bluffs, Iowa, December, 1908, against  
nineteen competing states.

We are land dealers and own our offerings. Fruit  
lands and suburban tracts our specialties. Liberal terms.

Address

**H. W. DORMAN**

Manager Dorman Land Company

Caldwell, Idaho

# For Better Fruit Buy Better Land

JUST OVER THE MOUNTAINS FROM OREGON IN A BEAUTIFUL CALIFORNIA VALLEY  
YOU CAN PICK FRUIT EVERY MONTH IN THE YEAR

You can cut alfalfa six times and net \$60 per acre. Two crops of potatoes and other vegetables give double the  
results obtained elsewhere. Our irrigated lands are selling fast at \$150 per acre, with water right, on easy terms.  
No damaging frosts; cheap river and rail transportation; adjoining the Stanford University vineyard. The chance of a  
lifetime.

WRITE US FOR FREE BOOKLET

**Los Molinos Land Company** Cone Street, Los Molinos, Tehama County, California



# D. CROSSLEY & SONS

Established 1878

## APPLES FOR EXPORT

California, Oregon, Washington, Idaho and Florida fruits. Apples handled in all European markets. Checks mailed from our New York office same day apples are sold on the other side. We are not agents we sell apples. We make a specialty of handling cherries, apricots, peaches and all early fruits on the New York market. Correspondence solicited.

200 TO 204 FRANKLIN STREET, NEW YORK

LIVERPOOL

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## Arcadia Orchards Company—Irrigated Orchards

*The Land of Sunshine*

*The Center of the Best Fruit Belt in Washington*

Only twenty-two miles from Spokane. Excellent transportation facilities, ideal climate, irrigation by gravity

**Our Plan:** We plant, cultivate, irrigate and care for your orchard for four years, and pay your taxes for five years. You may remain at your present occupation while we bring your orchard to bearing. No charge for water. The largest private irrigation project in the West. Buy now, before a further increase in values. Easy terms. Send for literature.

ARCADIA ORCHARDS COMPANY

Hyde Building, SPOKANE, WASHINGTON

## What Walla Walla Wants is You

Our valley is an agricultural paradise.

We have hundreds of prospering ranches.

We have the oldest orchards in the state.

We have the earliest strawberries in the state, year after year.

We have a climate that is right, and gardens grow nearly all winter.

We have the noted Blalock fruit farm of 1,500 acres.

We have the famous Dumas orchard of 100 acres, which has produced 69,000 boxes of high grade apples during the past two seasons.

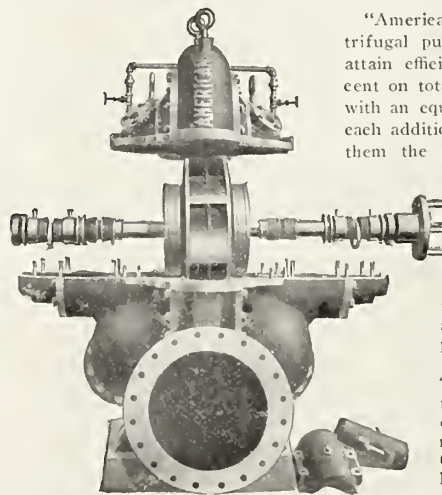
We have the soil, and the water in abundance, and our valley has been making good, as a place to farm and a place to live, for the past fifty years—yes, we emphasize that latter point, for it is of more importance than is sometimes understood. **WALLA WALLA VALLEY IS A GOOD PLACE TO LIVE**, for here agriculture goes hand in hand with a long established "civilization." In fact, the chief city of the valley, in addition to offering every ordinary convenience and benefit, is the home of the famous Whitman College, now accumulating an endowment of \$2,000,000, and ready today, with the scores of other schools throughout the valley, to welcome your children to opportunities equal to those of the East.

## ASK QUESTIONS

Commercial Club, Walla Walla, Wash.

All the Grand Prizes and All the Gold Medals  
Given by the Alaska-Yukon-Pacific Exposition at Seattle  
last summer to pumps were awarded to

## "AMERICAN" PUMPING MACHINERY



"American" single stage centrifugal pumps are guaranteed to attain efficiencies of 60 to 80 per cent on total heads up to 125 feet, with an equal increase in head for each additional stage, which makes them the most economical pump made for irrigation purposes.

"American" centrifugals are made in both horizontal and vertical styles, in any size, in any number of stages, and are equipped with any power.

Write for "Efficiency Tests of American Centrifugals," by the most eminent hydraulic engineer on the Pacific Coast. Complete catalogue, No. 104, free.

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General Office and Works: Aurora, Illinois, U. S. A.

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PACIFIC COAST SALES AGENCIES:

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**WEISER FAT LAND***See or write***Feltham-Klotz Land Company****WEISER, IDAHO**

For description and prices on choice irrigated fruit lands, orchards, stock ranches and timber lands

A1 apartment site, close to business center of Seattle; paved streets, beautiful view,

**TO EXCHANGE**

For first-class apple land in good location; slightly improved and near town preferred. What have you?

Address **B. F. WALDO, Owner**  
North 24th St. Tacoma, Wash.**SPRINGVILLE**

Is to Utah

What Palisade is to Colorado

**The Natural Fruit Center***Buy cheap lands now***ROE A. DEAL** Springville**John Leland Henderson***Incorporated***COUNTY SURVEYOR****HOOD RIVER, OREGON****POSSESSES****CLIMATE**—A desirable medium between the drier eastern and the more moist western conditions of the Northwest.**SOIL**—Volcanic ash, rich in phosphates, and recognized as the best in the world for apples and strawberries.

Makes a specialty of real estate, conveyancing, loans and surveying. The president, John Leland Henderson, is a practicing lawyer residing in Hood River, and has been identified with the Hood River Valley for thirty-three years

ALWAYS A FRUIT CROP IN

**HOOD RIVER VALLEY**

With best of prices, scenery, climate, transportation, soil, mountain water, timber, etc. Send for our list of lands and literature

**G. Y. EDWARDS & CO.****Hood River, Oregon****The Willamette Valley****OREGON****W**AS originally known as the "Garden of Eden." There Eve tempted Adam with the finest apples ever grown, and there the sons and daughters of Eve are still growing apples unexcelled. If you want to know about Apple Land for \$100 to \$350 per acre, as good as the sun ever shines on, address Albany Commercial Club, Dept. A, Albany, Ore.**ABSTRACTS, LOANS,  
INSURANCE, CONVEYANCING****WAUCOMA ABSTRACT AND  
INVESTMENT COMPANY***(Incorporated)***Hood River, Oregon****Willamette Valley Fruit Lands***In Tracts to Suit*Rich soil. Delightful climate  
For descriptive literature write**OLMSTED LAND CO.****Salem, Oregon****J. F. LITTOOY****CONSULTING HORTICULTURIST**

Orchard Director, Orchard Schemes Examined, Orchard Plans Submitted, Orchard Soils and Sites Selected, Nurseries Visited and Stock Selected, Values Examined for Farm Loans, Purchasing Agent for Land and Orchard Investments, Acts as Power of Attorney in Selection of Carey Act Lands.

**MOUNTAIN HOME, IDAHO****LAND****OF BIG, RED APPLES****WE ALWAYS HAVE SOME****CHOICE TRACTS TO OFFER**

At popular prices, and sell them strictly on their merits. Years of study given to Hood River and its products. Can sell you intelligently. Call on or address

**Geo. D. Culbertson & Co.****Leading Land Agents Hood River, Oregon**

We will plant and care for an

**Apple Orchard**

for you until it begins to bear—meantime you make small monthly payments

As the largest orchard operators in the Spokane country we invite you to become interested with us and in a way entirely within your means. I will gladly submit full data, price of tracts, terms, and other information of value upon request. Just request our booklet, "The Commercial Orchard," and say you want to know more. A postal will do.—A. G. Hanauer, Vice President.

**Hanauer-Graves Company****First and Stevens****SPOKANE, WASHINGTON***Owners of***MEADOW LAKE FARMS**

Ten miles southwest of Spokane on Cheney Electric Line. Five and ten-acre tracts, \$150.00 to \$200.00 an acre. Your own terms.

**ROGUE RIVER VALLEY***Famous for its APPLES, PEARS, PEACHES,  
GRAPES, MELONS AND CLIMATE***T**HE natural home of the Spitzenberg and Newtown apples. Rogue River pears have led the United States for the past five years in the highest price in the New York market. No peaches of the South excel those of Rogue River, and trees are healthy. Grapes perfection in color and flavor and the best of shippers, and growers have more orders than they can fill. Rogue River canteloupes, water-melons and cassabas, none better and big money-makers. The Rogue River Fruit Growers' Union gets the highest price for fruit, and the Southern Pacific gives terminal rates on shipments East. Climate the perfect medium between arid California and webfoot Oregon. No storms or winds to injure fruit crop. Almonds and figs ripen perfectly and palms grow in the yards. Land yet cheap, but will double in two years. American community and good schools, rural mails, telephones, etc. Full information by addressing **CHARLES MESERVE, Medford, Oregon, Seller of Real Estate in all parts of Rogue River Valley.** References by permission: Rogue River Fruit Growers' Union, First National Bank of Medford.**MOSIER**

Also called East Hood River

**FRUIT LANDS**

In large or small tracts. Some very good land at low prices at present. Good growing community. Six miles east of Hood River. Parties wishing to buy will do well to write or see

**GEO. CHAMBERLAIN**  
**MOSIER, OREGON****The School of Size is Good**  
" " " **Quality " Better**  
" " **Having Both " Best**  
*Investigation will  
prove we have both**"Business Training in Business Methods by Business Experts"***Behnke-Walker****The Leading Business College****Portland, Oregon**

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT



# White Salmon Valley

WASHINGTON

Across the river from Hood River Valley, Oregon in the Banner Apple Belt of the World



The WHITE SALMON VALLEY today presents OPPORTUNITIES FOR INVESTMENT beyond that of any other FRUIT REGION in the Northwest. It is the north half of a LARGE VALLEY lying between Mount Adams on the north and Mount Hood on the south. The mighty Columbia flows between and divides this valley. From the Columbia River to Mount Hood forms the Hood River Valley, and from the Columbia River to Mount Adams forms the White Salmon Valley. Both these mountains are snowclad all the year and influence the climatic conditions. This, together with a volcanic ash soil, produces apples that are superior to all others in the world in FLAVOR, SIZE, COLOR, and, most important of all, KEEPING AND SHIPPING QUALITIES.

Ninety per cent of the fruit grown in this valley is exported, bringing the highest market prices.

THE CLIMATE of this region is ideal. It is located in the midst of the CASCADES, with a pure mountain air and free from excessive rains or drouth. The snow-covered peaks at either end of the valley temper the heat of summer and make the summer nights cool and invigorating. The winters are as a rule mild and short. The scenery is as fine as may be found anywhere on the continent.

The valley has been held back heretofore through lack of railroad transportation, but the SPOKANE, PORTLAND & SEATTLE RAILROAD, part of the Hill system, now in operation, gives this valley the best of shipping facilities.

NOW IS THE TIME TO SECURE A CHOICE ORCHARD TRACT AT A LOW FIGURE. Write today for particulars of this wonderful valley to the

WHITE SALMON VALLEY DEVELOPMENT LEAGUE

White Salmon, Washington

## WHITE SALMON ORCHARD LANDS AT WINTER PRICES

Every spring choice orchard land advances in price; we advise all our regular customers, as well as those contemplating buying orchard land, to do so at once, before the usual spring advance

The White Salmon Valley is becoming too well known to need more advertising, from the fact that the majority of our ranchers have chosen the White Salmon Valley in preference to some of the older and better known districts, after a comparison of fruit grown, soil and climate.

362—80 acres 4 miles out from White Salmon, overlooking the Columbia River, Mount Hood, Hood River and Mount Adams. Soil is red shot (the best for apple orchard); two flowing springs; good stand of fir suitable for building purposes; 50 acres good orchard land in this tract; balance pasture land, too rolling for orchard. For an immediate sale we are instructed to sell this 80 for only \$62.50 an acre; half cash, balance 3 years at 8 per cent.

363—40 acres near Snowden; flowing spring water, black loam and red shot soil; 1 acre cleared, balance fir timber. The proposed new electric road will pass near this tract, and when cars are running this 40 will be worth twice our present price of only \$42.50 an acre. Easy terms.

361—40 acres adjoining the above (No. 363); similar soil. This 40 also has a flowing stream which empties into Major Creek. These two 10's are well adapted for cutting into 10 and 20-acre tracts, there being enough of a fall to the stream to put water on every tract by use of a ram. Some of the best fruit grown in the valley came from the ranch adjoining this tract. Present price only \$42.50 an acre; half cash, balance 3 years at 8 per cent.

368—40 acres partly improved near the well-known "Pyatt-Zeigler" orchard; 3 acres cleared and under plow, 1½ acres in bearing orchard; house, barn and other buildings on the ranch. A very desirable tract of

land, all ready to move on to; little if any waste land; in a proven fruit district with congenial neighbors; balance of land easily cleared. Now listed at only \$100 an acre; half cash, balance 3 years.

We mention a few of our best bargains for immediate sale at very reasonable prices. These prices are not guaranteed after March 10.

369—10 acres adjoining the above tract of raw land, on county road; nearly all good orchard land, nearly level, with good drainage. One of the best tracts in this well-known section at any price. If sold this month \$75 an acre takes the 40; terms half cash, balance 3 years at 8 per cent.

370—30 acres near Husum, 7 miles from White Salmon; spring water, red shot soil, on main county road. The new railway site for a station is only one mile from this tract. This is one of the few tracts that have not been advanced in price since the new railway survey. Price \$165 an acre.

328—10 acres 1 mile out; southern slope, very desirable for early strawberries; second growth fir, which is easy to clear; fine view of Mount Hood when land is cleared; good orchard land near town is becoming very scarce. This tract is offered at only \$165 an acre; half cash, balance 3 years at 8 per cent.

371—40 acres 2½ miles out, slashed and burnt over; about 30 acres good orchard land, balance suitable for pasture, but too rolling for orchard; red shot soil, in good neighborhood, and a snap at only \$2,500 (\$62.50 an acre); half cash, balance 3 years at 8 per cent.

Space does not permit us to give a complete list of all the tracts we have for sale, ranging from 5-acre tracts up, to sell from \$25 an acre up, depending on distance from town, soil, improvements, etc. Send for our complete list of over 1,000 acres and tell us what you would be interested

in and we will gladly give any information. By taking an option on a piece of land by wire or letter, holds it until you can examine more thoroughly. All land we list is guaranteed as good as we represent it. (We list no land we have not cruised and examined.)

SEND FOR BOOKLET AND COMPLETE LIST, AS WELL AS FOR GENERAL INFORMATION, TO

### THE WHITE SALMON REALTY CO.

H. W. DAY, Manager

WHITE SALMON, WASHINGTON



# UNDERWOOD

*The Gateway to the White Salmon Valley*



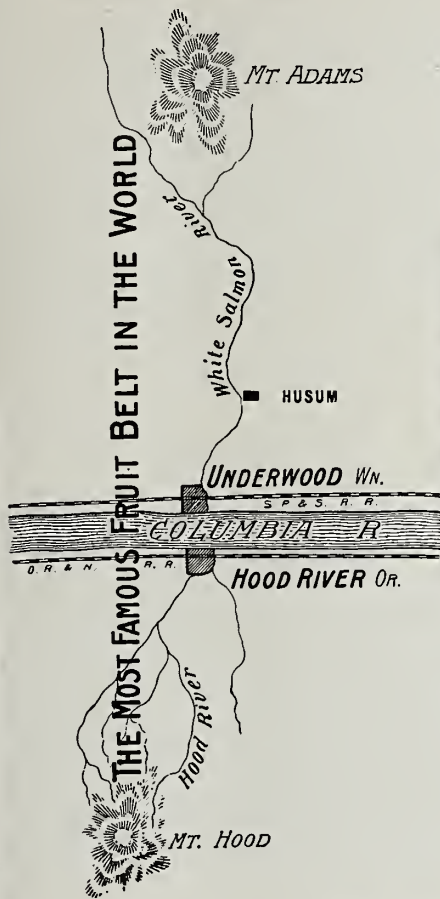
WHITE SALMON VALLEY FRUIT GROWERS' UNION OF UNDERWOOD, WASHINGTON, WON THREE IMPORTANT PREMIUMS AT SPOKANE

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30 Acres for \$2900

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ORNAMENTALS OF ALL KINDS

**PRICES QUOTED ON APPLICATION**

Apple Scions Wanted



# Newtowns Yield \$1800 per Acre

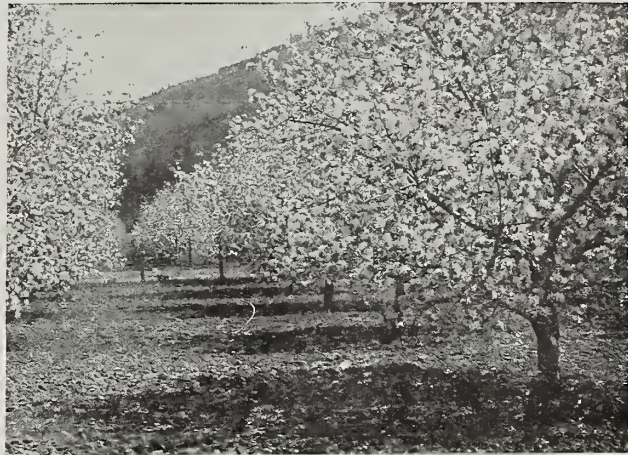
James Lacey on an acre of Newtowns marketed 791 boxes of first grade apples, which brought \$1,698.55. He has left fifty boxes of seconds, which will sell for about \$1.50 per box, and bring the total gross sales from one acre of Newtowns up to \$1,800. The returns from his three and a half acres of bearing apples, all kinds, are \$3,801.76 for first grade apples alone, and second grades will fully pay for the labor of taking care of the crop. This makes an average of over \$1,000 an acre profit.

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That will raise the world famous  
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And tell our customers the actual facts. Some of our clients have doubled their money in two years, and some of them could make a much larger profit if they wanted to sell.

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10 ACRES—1½ miles out on west side, 8½ acres of which are planted to strictly commercial orchard, as follows: 4 acres in 6-year-old and 4½ acres in 3 and 4-year-old Newtowns and Spitzenbergs; balance of place ready to plant to orchard; 1½ acres in strawberries, between the trees; sufficient water stock for irrigation; new house and barn. Price, including horse, cow, buggy and all farm tools and implements; now is the time to buy, before prices advance. This is a snap at \$12,000; \$5,000 cash.

21¼ ACRES—Finest volcanic ash soil; located in the heart of the east side district; 20 acres planted to strictly commercial orchard, nearly all of which is in full bearing. This property has been developed by one of the most practical growers in the valley entirely upon scientific lines, and is in prime condition; perfect air and soil drainage and slightly location; improved with house, barn and suitable outbuildings; plenty of water. A genuine bargain at the price, \$32,500; terms.

**Devlin & Firebaugh**

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Hood River, Oregon



ORCHARD VIEW IN THE FAMOUS HOOD RIVER VALLEY, SHOWING MOUNT HOOD  
IN BACKGROUND



# BETTER FRUIT

A MONTHLY ILLUSTRATED MAGAZINE PUBLISHED IN THE INTEREST  
OF MODERN AND PROGRESSIVE FRUIT GROWING AND MARKETING

## ORCHARD INSECT PESTS AND THEIR REMEDIES

BY C. P. GILLETTE, THE AGRICULTURAL EXPERIMENT STATION OF THE COLORADO AGRICULTURAL COLLEGE

THE following bulletin was issued by the Agricultural Experiment Station of the Colorado Agricultural College to supply the constant call for information from fruit growers in regard to the common insect pests and the remedies that are commonly used for their destruction or prevention. It is really Bulletin 71 revised and somewhat enlarged. The most important additions are the short articles upon two currant and gooseberry insects, the currant and gooseberry fruit maggot and the currant and gooseberry fruit worm. The most important omissions are in cuts of spraying apparatus.

No attempt has been made to include all of the insects injurious to fruits in the state, nor to give the methods of preparing all the insecticides of importance. The station will be glad to receive inquiries concerning any other insect pests that may be troublesome in any manner to residents of Colorado. Always send specimens of the insects and their injuries when possible, and give as much information in regard to habits and injuries as you can. Fuller information

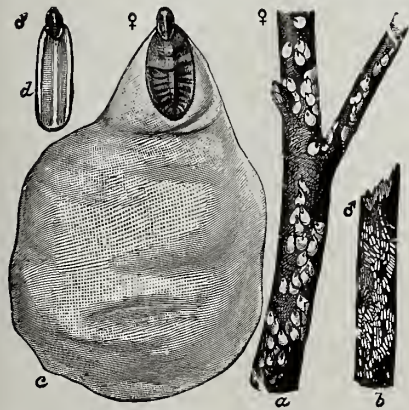


FIGURE 6—SCURVY BARK LOUSE

a, Twig showing scales of female louse; b, Twig showing scales of male louse; c, Scale of female greatly enlarged; d, Scale of male greatly enlarged (Howard, Yearbook, U. S. Department of Agriculture, 1894)

in regard to any insect mentioned in this bulletin will also be given upon request.

In the second part of this bulletin the insecticides mentioned are numbered, so that in the first part, which treats of injurious insects, the remedies recommended in each case are referred to by number for the sake of brevity.

Many remedies that are rarely of importance and other supposed remedies

that are of little or no use, are left out of this bulletin. The attempt is to give the more important remedies for use in this state.

### Insects Injurious to the Apple CODLING MOTH

Flesh-colored larvae eating into the fruit and causing wormy apples. The first brood of larvae (worms) begin eating into the fruit when early apples are

treatment, and if no blossoms have opened since, it will probably be better to follow the plan of Mr. Art Roberts, of Paonia, and make the second application thirty days after the first.

Upon the thoroughness of the first and second applications the success will

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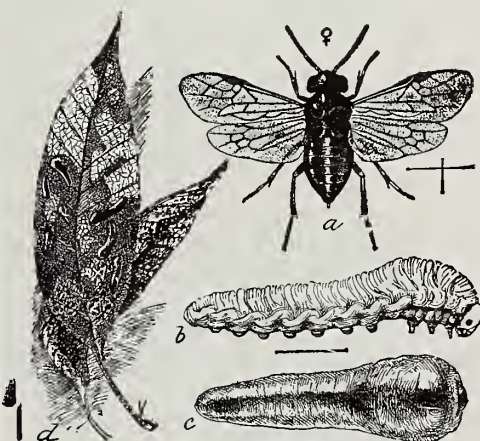


FIGURE 9—PEAR TREE SLUG

a, Adult fly; b, Larva or slug, with slimy covering removed; c, Same, in natural condition; d, Leaves showing slugs and their injuries. (Marlatt, Circular 26, second series, U. S. Department of Agriculture, Division of Entomology)

depend. Just what degree of benefit may be expected from later applications has not been thoroughly determined. Professor Cordley, of Oregon, seems to have proven that late spraying is very important in that state.

Bandages are also of considerable service if carefully attended to, and if the worms are very numerous. Lights to trap the moths are valueless. Screen cellar windows and doors where fruit is kept.

Plate II., Figure 1, shows blossoms from which the petals have fallen, and also small apples with their blossoms (calyces) tightly closed so that little or no spray could be forced into them, all upon a single spur of a Duchess tree at one time. The blossoms at (a) are in just the right condition to receive and hold the poison. The two apples should have received the spray a full week earlier. In such a case two early sprays may be needed.

### HOWARD'S SCALE (*Aspidiotus Howardi*)

This scale is occasionally found upon apples in Colorado. It closely resembles the San Jose scale, but seldom causes

about three-fourths of an inch in diameter. This brood is not very numerous, but it develops into a second brood that comes on late in the summer which is very much more numerous. The moth and its eggs are shown as Plate I., Figures 3 and 4.

Remedies—The arsenical poisons are, by far, the best remedies we have for this insect.

Make the first application as soon as the blossoms have faded and nearly all fallen. Continue the application till every calyx (blossom) is filled with the liquid. Repeat the application in one week. Or, if you were very thorough in the first



the red blotch where it rests upon the fruit. Figure 6 of Plate I. shows this scale upon pear.

For remedies see San Jose scale.

### Attacking the Foliage

#### LEAF ROLLERS

The fruit tree leaf-roller (*Archips argyrospila*) is a green larva with a black head and measures about three-fourths of an inch in length when fully grown. The larvae begin to hatch with the opening of the buds of the apple trees in the spring. They attack at once the tender-

est leaves and fold them about themselves for protection. When abundant, they may completely defoliate the trees. They disappear during June and do not appear again until the following spring. In the meantime the eggs may be found in little gray patches anywhere upon the bark of trunk or limbs. See Plate I., Figure 5.

Remedies—Crush as many as possible of the egg patches during winter and early spring. The best remedy is to spray thoroughly with one of the arsenites as soon as the first leaves are out.

Repeat in one week. Make a third application in another week or ten days if it seems necessary.

Protect the toads and insectivorous birds, as both feed freely upon the

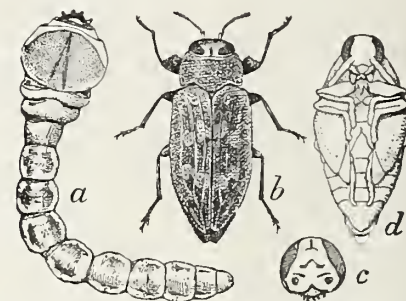


FIGURE 5—FLAT-HEADED APPLE TREE BORER  
a. Flat-headed larva; b. Mature beetle; c. Head of mature beetle; d. Pupa. All twice natural size. (Chittenden, Circular 32, U. S. Department of Agriculture, Division of Entomology)

rollers. The blackbirds are especially destructive to them.

#### FALL WEB WORM (*Hyphantria cunea*)

This insect is often mistaken for the next species. The webs are larger and loose or open, and the caterpillars stay in them to feed. When the leaves within the tent are devoured, the web is extended so as to take in more foliage. These tents also appear later in the season than those of the following species. They will seldom be noticed before the middle of July. The adult insect is a white moth, sometimes speckled with black. See Figure 1.

Remedies—The same as for the following species, except that it is not practical to collect the eggs which are deposited upon the leaves.

#### WESTERN TENT CATERPILLAR (*Malacosoma fragilis*)

This insect also hatches as soon as the leaf buds open, and builds small webs in the forks of the branches. A large number of caterpillars inhabit a web or tent, which is increased as necessity requires. See Plate I., Figure 1.

Remedies—While the foliage is off, collect the large egg-clusters which are stuck to small limbs. They are covered with a dark, spongy material and are quite readily seen, appearing as galls or swellings of the limbs. If this remedy has been neglected, spray with the arsenical mixtures. While the tents are small they may be cut out and burned if on small limbs. If on large limbs they may be burned out with a torch.

#### APPLE FLEA BEETLE (*Haltica* sp.)

The apple flea beetle is a small, metallic green insect, about an eighth of an inch in length, which jumps or drops from the foliage when disturbed. It is most abundant on young trees or nursery stock or sprouts.

Remedies—Any of the arsenical mixtures are effectual in destroying this insect or driving it from the foliage. It can usually be driven from the leaves by the application of dry substances, such as lime, ashes, plaster, etc.

#### BROWN MITE (*Bryobia* sp.)

The brown or clover mite is extremely small and its presence is usually first

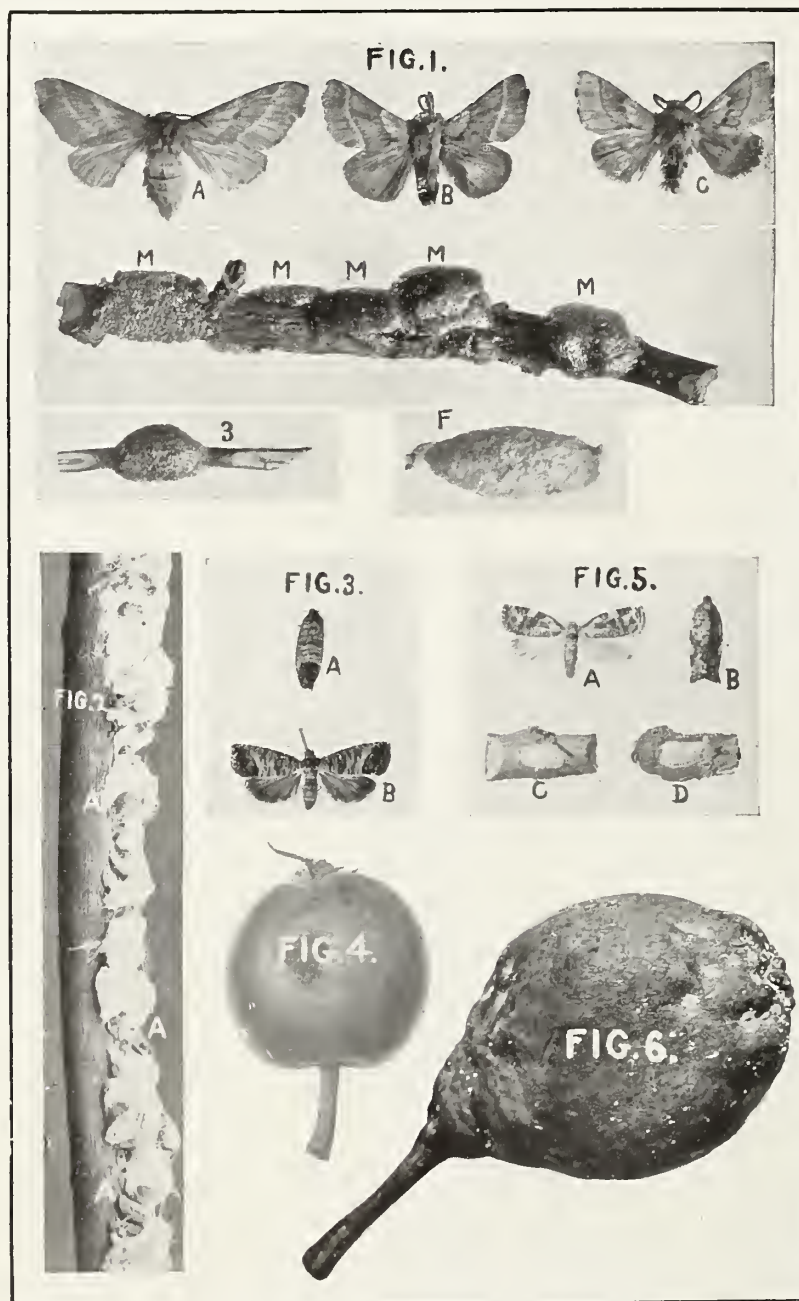


PLATE I.—FIGURE 1—Western Tent Caterpillar: A, Female moth; B, C, Males; D, Apple twig with egg masses (M); F, Cocoon; 3, Egg mass of American tent caterpillar, life size. FIGURE 2—Cottony Maple Scale: A, Scales mostly hidden by secretion, life size. FIGURE 3—Codling Moth: A, Wings closed; B, Open; enlarged about one-fourth. FIGURE 4—Apple showing white egg of codling moth (under letter F), life size. FIGURE 5—Fruit Tree Leaf Roller: A, Moth, wings open; B, Closed; C, D, Egg patches, hatched; all life size. FIGURE 6—Pear with Howard's Scale. The young appear as minute white specks. Life size. Figures from photographs by the author.



detected by the faded, sickly appearance of the foliage. See Plate III., Figure 1. The trees appear to need more water. The mites feed upon the leaves but deposit their red eggs upon trunk and

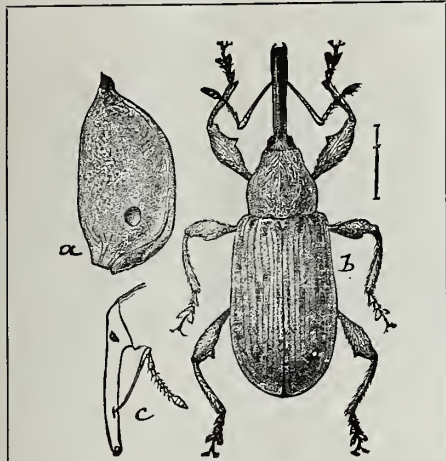


FIGURE 10—PLUM GOUGER  
a, Plum pit showing hole for exit of gouger; b, Gouger; c, Side view of head of gouger, showing beak and antenna. (Riley and Howard, Insect Life, vol. 2, U. S. Dept. of Agriculture, Div. of Entomology)

limbs. When very abundant, these eggs color the bark red, which is most often noticed during winter.

Remedies—To destroy the eggs while the trees are dormant (during winter) use lime, salt and sulphur mixture; kerosene emulsion, quadruple strength; whale oil soap, quadruple strength, or crude petroleum. To kill the mites during the summer use a sulphur spray.

#### APPLE PLANT LOUSE (*Aphis pomi*)

A green louse curling the leaves of apple trees, usually most abundant late in the season, after the middle of July. See the eggs on apple twig, Plate III., Figure 4. These are minute, black objects.

Remedies—For the destruction of the eggs, spray with black leaf extract, 1 part in 30 parts water, before the eggs hatch in spring. To destroy the lice, apply kerosene emulsion or whale oil soap, or black leaf extract, 1 to 70, thoroughly, and in a manner to bring the liquid in contact with the bodies of the lice.

#### SCALE INSECTS

For the treatment of scale insects it is advisable, in each case, to write to the experiment station for specific direction. Specimens of the scale should also be sent. Otherwise, use the treatment recommended for San Jose scale.

#### Grasshoppers

Several species. Those that fly from tree to tree can probably be managed best by means of arsenical sprays, when safe to use them.

Those that crawl up the trunks into the trees and jump to the ground when disturbed, can quite largely be kept out of the trees by the use of the arsenic bran-mash used freely about the border

of the orchard, and by sticky bands of Raupenleim, tree tanglefoot, printer's ink, or even cotton batting, about the trunks of the trees. If the sticky bands are used they should be spread upon strips of cardboard which have first been wrapped about the trunks.

Grasshoppers that injure orchards usually come from adjoining alfalfa or grass fields. In such cases the free use of the hopper pan in the alfalfa or grass field is the best remedy. One of the hopper pans is shown at Figure 2. At Figure 3 female grasshoppers are shown in the act of depositing eggs in the ground.

#### Attacking Trunk and Branches

##### APPLE TWIG BORER (*Amphicercus bicaudatus*)

A cylindrical, mahogany-colored beetle, about one-third of an inch long, boring holes in twigs of apple, pear, cherry and other trees and grapevines. See Figure 4.

##### BORERS, FLAT HEADED

##### (*Chrysobothris femorata*)

A whitish grub boring beneath the bark of apple and other trees and peculiar in appearance in seeming to have a greatly enlarged flat head. Figure 5.

Remedies—Remove with a pocket knife whenever found. Protect the south side of the trunks of the trees

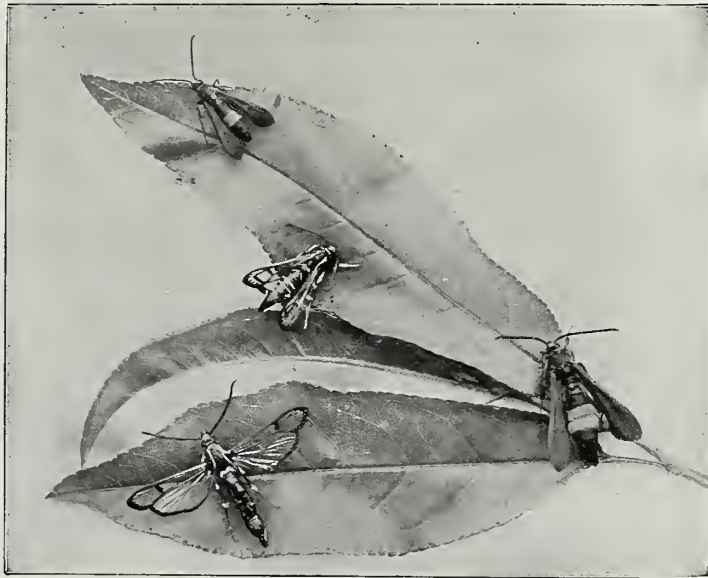


FIGURE 1—MOTHS OF PEACH BORER



FIGURE 2—PEACH TREE Banded WITH PAPER

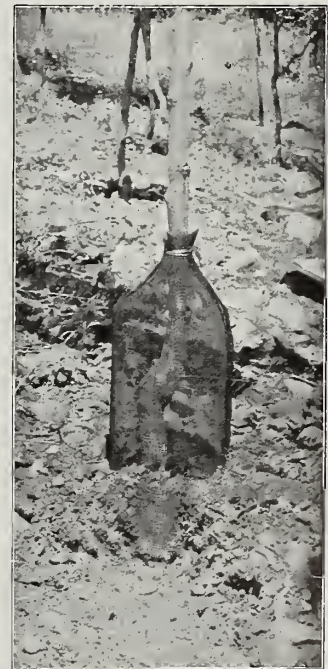


FIGURE 3—PEACH TREE WITH WIRE SCREEN

(All after Slingerland. Bulletin 176, Cornell Experiment Station)

PLATE IV.



from the sun's heat, either by shading or whitewashing during late winter and spring.

#### BUFFALO TREE HOPPER (*Ceresa* sp.)

Three-cornered, greenish to brownish insects, about one-third of an inch in length. They jump when disturbed and puncture twigs of trees and stems of plants for the deposition of their eggs. From these punctures oval scars result. See Plate III., Figure 3.

Remedies—Infested twigs may be pruned away and burned during winter or spring. Probably clean culture is the best prevention. Keep down all weeds

and unnecessary vegetation in and about the orchard.

#### SAN JOSE SCALE (*Aspidiotus perniciosus*)

This insect is very easily overlooked and may be present in sufficient numbers to kill trees before its presence is discovered by the orchardist. They may infest trunk, twig, fruit, or foliage. The scale is nearly circular, about one-sixteenth of an inch in diameter, dark gray in color with a spot at the center. Any one finding such scales upon any tree should send examples at once to the experiment station for examination, as there are several species closely resem-

bling each other in outward appearance. See Plate I., Figure 6, which shows a closely related species on pear.

Remedies—Spray with lime and sulphur mixture while the trees are dormant. Or, spray with whale oil soap

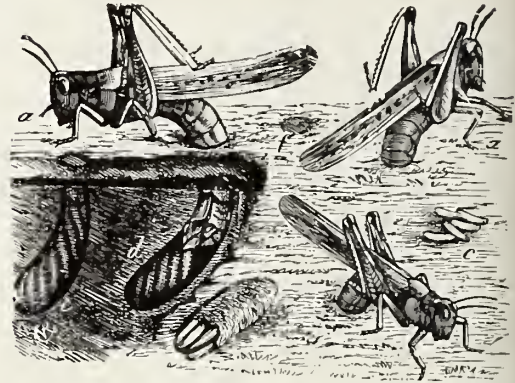


FIGURE 3—ROCKY MOUNTAIN LOCUST  
Laying eggs in the ground. a, a, Females with their abdomens in the ground; b, An egg pod broken open; c, Scattered eggs; d, Egg packet in ground. (After Riley)

in the proportion of two pounds to a gallon of water, or with crude petroleum or with sedecide, one part in fifteen parts water, during winter. If trees are very badly infested, it will often be best to cut and burn them.

#### PUTNAM'S SCALE (*Aspidiotus onychus*)

Very closely resembling the preceding species. Central spot on the scale reddish. Remedies the same.

#### HOWARD'S SCALE (*Aspidiotus howardi*)

This scale can hardly be distinguished, in external appearance, from the preceding species. It is the only scale that seems to be at all common in Colorado orchards. The central nipple is orange red and the scales are often quite light colored. Its presence should be at once reported to the experiment station. Remedies the same as for San Jose scale above.

#### SCURVY BARK LOUSE (*Chionaspis furfura*)

Small, white scales resembling scurf or dandruff on the trunk or branches. There are two sizes; the females are larger and oval, and the males are very small and slender. See Figure 6.

Remedies—The same as for San Jose scale.

#### WOOLLY APHIS (*Schizoneura lanigera*)

Small, rusty-brown lice, more or less densely covered with a white, flocculent secretion. If the lice are crushed in the hand they leave a red stain. The lice attack chiefly tender bark about wounds or on tender growing shoots.

Remedies—Early in the season, when the white patches begin to appear on trunk and branches, paint them over with pure kerosene, crude petroleum, or a very strong kerosene emulsion, or whale oil soap mixture. If the lice become abundant late in the season, apply kerosene emulsion or whale oil soap in ordinary strength, but with a great deal of force and a coarse spray in order to wet through the waxy secretion which covers them.

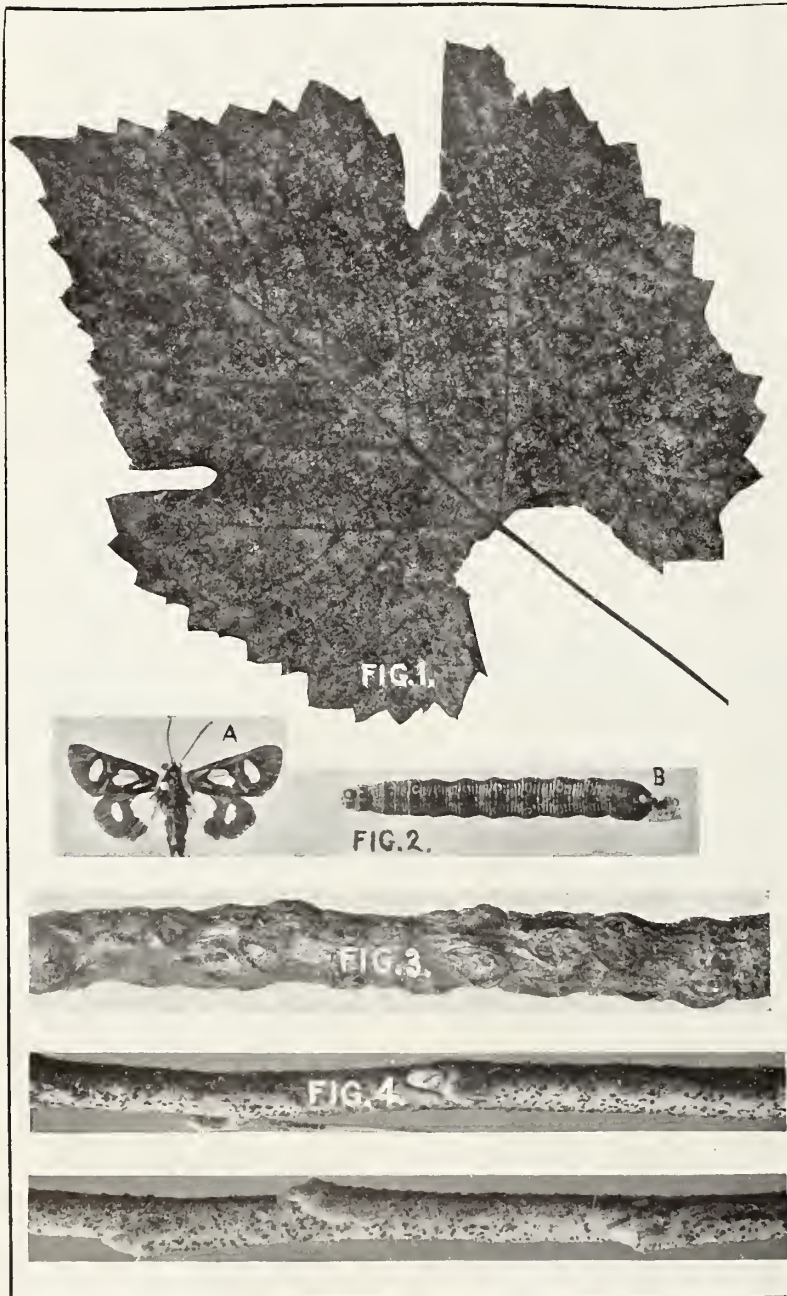


PLATE III.—FIGURE 1—Grape leaf showing bleached appearance due to grape leaf hopper (*Typhlocyba comae*). FIGURE 2—Eight-spotted forester (*Alypia 8-maculata*); A, Moth; B, Larva; nearly life size. FIGURE 3—Apple twigs injured by buffalo tree hopper (*Ceresa* sp.); life size. FIGURE 4—Eggs of apple plant louse on apple twigs; natural size. Photographs by author



This insect also attacks the roots. See Figure 7.

#### OYSTER SHELL BARK LOUSE (*Lepidosaphes ulmi*)

Scales of the same color as the bark of the tree, about one-eighth of an inch long, curved and small at one end. Very easily overlooked. See Figure 8.

Remedies the same as for the San Jose scale.

#### Attacking the Roots

##### WOOLLY APHIS (*Schizoneura lanigera*)

This insect attacks the roots as well as the trunk and branches. It causes wart-like excrescences and very often the destruction of the greater portion of the smaller roots. (Figure 7.) The descrip-

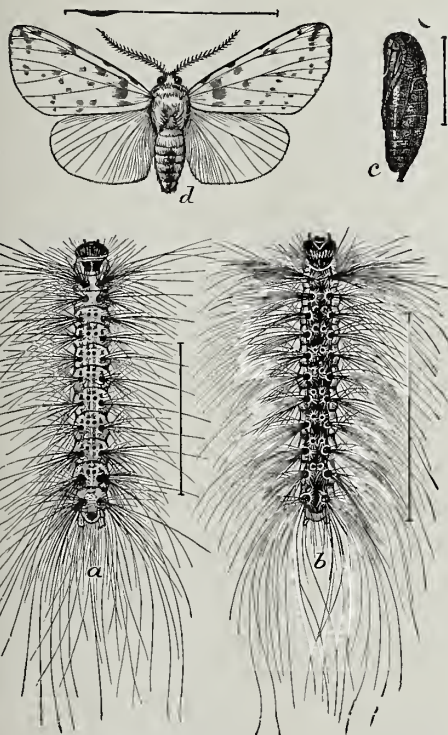


FIGURE 1—FALL WEB-WORM  
a and b, Caterpillars; c, Chrysalis; d, Moth  
(Howard, Yearbook U. S. Department  
of Agriculture, 1895)

tion of the louse is the same as for the trunk form mentioned above.

Remedies—Remove the earth about crown for a distance of about two feet, put in four to six pounds of tobacco dust (or double this amount of stems) and cover again; then irrigate. If the tobacco can not be procured, use kerosene emulsion or whale oil soap of the ordinary strengths in its place, pouring in a liberal quantity.

#### Insects Attacking the Pear

Any of the insects mentioned above as attacking the apple may be found attacking the pear, except the woolly plant louse, and the same remedies should be employed.

##### PEAR TREE SLUG (*Eriocampoides limacina*)

Slimy, dark-colored larvae with the head end much the larger, somewhat resembling snails, resting upon the upper surface of the leaves, which they skeletonize. See Figure 9. Two broods each year.

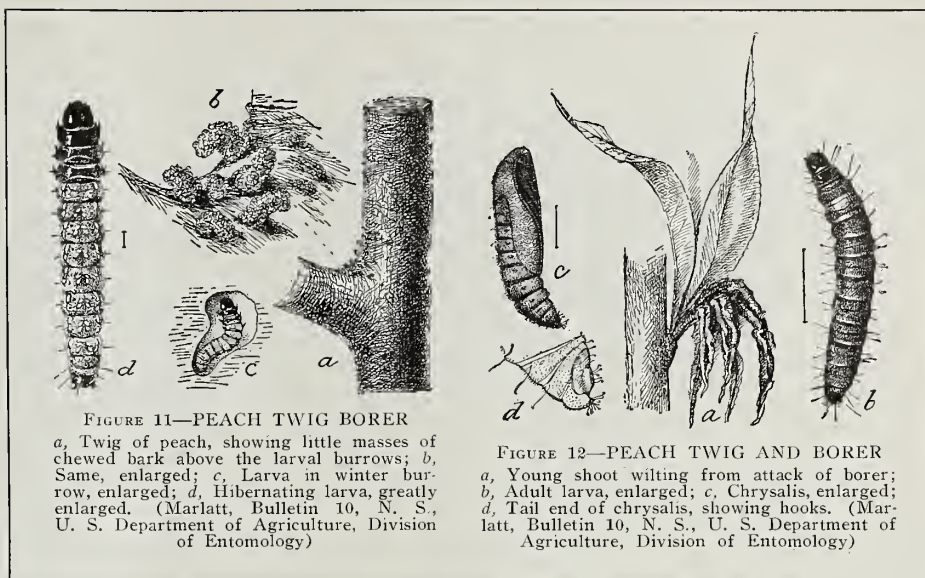


FIGURE 11—PEACH TWIG BORER

a, Twig of peach, showing little masses of chewed bark above the larval burrows; b, Same, enlarged; c, Larva in winter burrow, enlarged; d, Hibernating larva, greatly enlarged. (Marlatt, Bulletin 10, N. S., U. S. Department of Agriculture, Division of Entomology)

FIGURE 12—PEACH TWIG AND BORER

a, Young shoot wilting from attack of borer; b, Adult larva, enlarged; c, Chrysalis, enlarged; d, Tail end of chrysalis, showing hooks. (Marlatt, Bulletin 10, N. S., U. S. Department of Agriculture, Division of Entomology)

Remedies—Apply white hellebore, or any of the arsenical mixtures, by dusting or by spraying. Freshly slacked lime or wood ashes freely dusted upon the larvae will kill most of them.

This is an easy insect to control and should not be allowed to continue its serious injuries to the pear, plum and cherry as it has been doing in past years.

##### PEAR LEAF BLISTER (*Phytoptus pyri*)

Small, dark spots upon the leaves, sometimes very abundant and involving the greater portion of the surface. The diseased portion is thickened also and at first is green like the rest of the leaf. The leaves often fall prematurely.

Remedies—Spray the trees while dormant with kerosene emulsion, treble strength; whale oil soap, one pound to two gallons of water; or with lime and sulphur mixture. Gather and burn as many of the fallen leaves as possible.

##### HOWARD'S SCALE (*Aspidiotus howardi*)

This scale is too common in Colorado orchards. It is a close relative of the pernicious, or San José scale, but so far, has been most common upon plum and pear. Pears, or any fruit affected with scales, should be reported promptly to the experiment station. See Plate I., Figure 6.

Remedies—The same as for San Jose scale mentioned under apple insects.



PLATE II.—FIGURE 1—Blossoms from which petals have fallen and still in good condition to receive the spray. Also apples with calyces closed



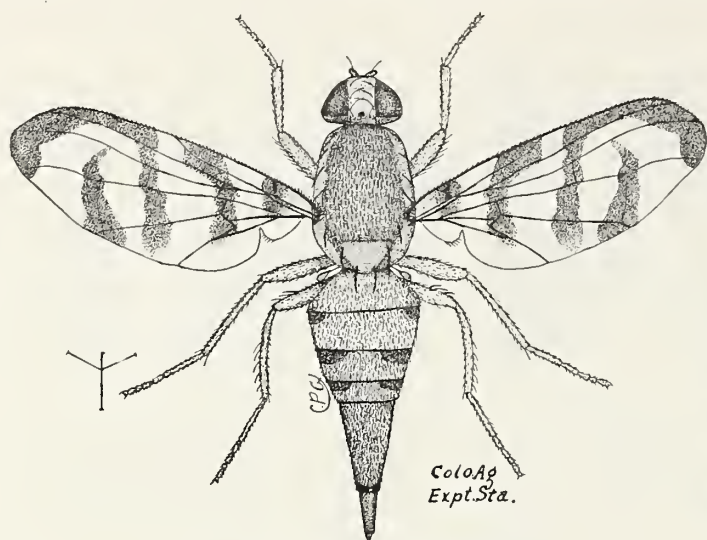


FIGURE 13—ADULT OF CURRANT AND GOOSEBERRY FRUIT MAGGOT

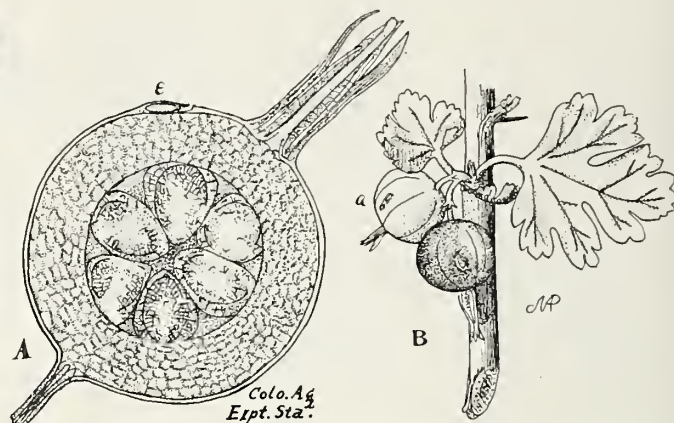


FIGURE 14—CURRANT AND GOOSEBERRY FRUIT MAGGOT  
A, Section through a gooseberry, showing egg and puncture at *e*; B, Two gooseberries on a stem, showing egg puncture or sting at *a*. Original. Drawings by Miss M. A. Palmer

### Insects Injurious to the Plum

#### PLUM GOUGER (*Coccotorus prunicida*)

A small but rather robust snout-beetle about a quarter of an inch in length; color a leaden gray with head and thorax ochreous yellow; wing covers smooth without prominent humps on them. The beetle eats pin-holes in the growing plums in which it lays its eggs. The larva or grub eats into the pit and feeds upon the kernel, and later eats a hole out through both pit and flesh of the plum just before the plum matures (Figure 10). The only insect in Colorado injuring the fruit of the plum to any extent.

Remedies—Jar the trees early every morning, or in the evening, from the time the blossoms are out till very few beetles can be obtained, catching them on a sheet spread beneath. It only takes a few beetles to do a great amount of harm, as I have found by actual count that a single female may lay as many as 450 eggs. Gathering and destroying all stung plums during the early part of July would nearly exterminate this insect. Spraying with an arsenical poison once, a few days before the trees blossom, and once or twice after, will give considerable protection. Use the poisons in two-thirds ordinary, or standard strengths. Arsenate of lead is probably the safest to use on the foliage of the plum.

#### PLUM CURCULIO (*Conotrachelus nenuphar*)

This beetle is often confused with the preceding. As yet it has not been reported in Colorado. It is liable any year to appear in our orchards and all should be on the lookout for it so as to do all possible to stamp it out or prevent its rapid spread. It is as destructive to the European varieties of plums as the codling moth is to apples. The beetle is brown to blackish in color, is about one-fifth of an inch long, and has two prominent humps and numerous smaller ones upon its wing covers. The

beetle makes a crescent-shaped cut in the flesh of the fruit where an egg is deposited, and the grub does not enter the pit, but feeds on the flesh outside of it, causing the fruit to fall.

Remedies—Jarring and spraying as in case of the preceding species.

Should anyone find what he thinks to be the work of this insect in an orchard, it is hoped he will notify the experiment station at once.

### Attacking the Foliage

#### FRUIT TREE LEAF ROLLER

(*Archips argyrospila*)

See under apple insects. Use the poisons only two-thirds as strong on the plum as on the apple. Arsenate of lead is least likely to injure the foliage.

#### SLUGS

Skeletonizing the upper surface of the leaves. See pear tree slug. Use the same remedies.

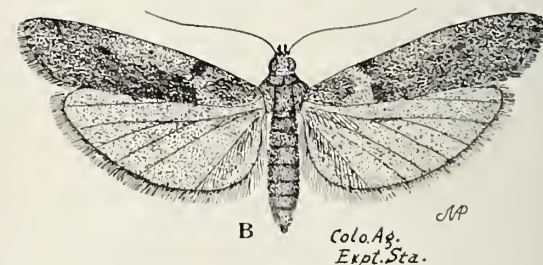
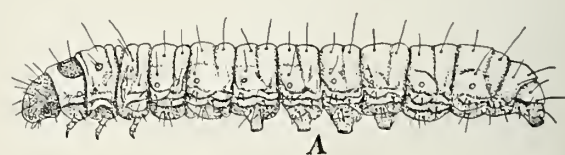


FIGURE 15—CURRANT AND GOOSEBERRY FRUIT WORM  
A, Worm; B, Moth; C, Gooseberries webbed together. Original. Drawings by Miss M. A. Palmer

### BROWN MITE

See under apple insects. Remedies the same.

### PLANT LICE

Two or three species attack the foliage of the plum badly in Colorado. Remedies the same as for apple plant louse.

Other insects attacking apple foliage may be found on plum, where they are destroyed by the same treatment in either case.

### Attacking Trunk and Branches

#### THE PEACH BORER (*Sanninoidea exitiosa*)

This insect often attacks the plum. For its treatment see peach enemies.

#### FLAT-HEADED BORER

See under apple enemies.

#### SCALE INSECTS

See under apple enemies. When scales are found it will be well to send specimens to the experiment station for iden-







This insect is also bad on Virginia creeper.

#### THE EIGHT-SPOTTED FORESTER (*Alyia octomaculata*)

A dark-colored caterpillar, about one and one-half inches long when fully

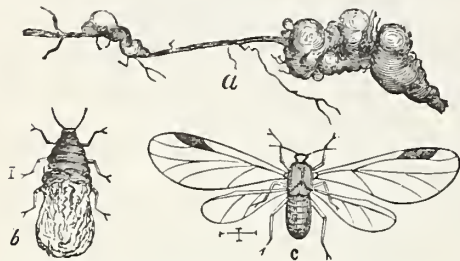


FIGURE 7—WOOLLY APHIS, ROOT FORM  
a, Small root showing swellings caused by the lice;  
b, Wingless louse, showing woolly secretion; c,  
Winged louse. (After Saunders)

grown. A close examination will reveal numerous small black and white cross lines and a few red ones to each body segment. See Plate III., Figure 2.

Remedies—The same as for the preceding species.

This insect also infests the Virginia creeper.

#### STEM BORER

See apple twig borer, which also attacks the grape.

#### COTTONY SCALE (*Pulvinaria innumerabilis*)

This scale, commonly found infesting soft maple, sometimes attacks grapevines. See Plate I., Figure 2.

Remedies—Kerosene emulsion made strong, so as to be one-fifth kerosene, thoroughly sprayed during the winter or early spring is very effectual. When the little lice first hatch from the scales,

about the last of June, the ordinary sprays of kerosene emulsion or whale oil soap will destroy them. If the spraying is delayed till a heavy scale has formed over the lice, stronger applications will be required.

#### TREE CRICKETS (*Oecanthus* sp.)

The female cricket punctures stems of grape and other plants and in each puncture deposits a long, cylindrical egg. The punctures are usually in rows lengthwise of the stem and look like needle thrusts.

Remedies—Cut out the badly infested stems. Keep the vineyard clean of all weeds.

#### GRAPE FLEA BEETLE (*Graptodera chalybaea*)

A small steel-blue beetle appearing early in the spring and again in midsummer and feeding upon the foliage. The beetles deposit eggs which soon hatch into small, dark-colored larvae, which also eat holes in the leaves.

Remedies—Arsenical poisons sprayed or dusted upon the foliage. If unsafe to use poisons, dust freely with Pyrethrum.

#### GRAPE LEAF HOPPERS (*Typhlocyba* sp.)

Small, jumping and flying insects, often called "grape thrips." The insects often fly out from the vine in great numbers when the latter is jarred and return quickly to the under side of the leaves. As a result of the punctures and the extraction of the sap, the leaves lose their dark green color and at first are minutely speckled and freckled with white, as shown at Plate III., Figure 1. Later the leaves shrivel and die. The red spiders, brown mites and thrips cause a similar appearance of the foliage they attack.

Remedies—Spray forcibly with kerosene emulsion, kerosene and water, or whale-oil soap very early in the morning while the insects are dormant and drop readily from the leaves. Burn dry leaves, dead grass and other rubbish in the



FIGURE 17—Strawberry leaves showing appearance after being folded. (After Weed)

vicinity of the vineyard during winter or early spring, on a cold day.

#### GRASSHOPPERS

Remedies—Use arsenical spray where safe. If not safe to spray, use the arsenic-bran mash freely about the borders of the vineyard and about the vines. Make free use of hopper-pans in adjoining fields to reduce the number of hop-



TRAIN OF HOOD RIVER APPLES LEAVING HOOD RIVER, OREGON, NOVEMBER, 1909. SOLD TO STEINHARDT & KELLY, NEW YORK



pers before they reach the vineyard. Plow or thoroughly harrow the ditch banks and the borders of the field late in the fall to destroy as many of the eggs as possible.

#### Insects Injurious to the Currant IMPORTED CURRANT BORER (*Sesia tipuliformis*)

Yellowish white larvae burrowing in stems, giving rise to wasp-like moths in June. The moths closely resemble those of the peach borer, shown at Plate IV., Figure 1.

Remedies—Cut out the infested stems and burn them during winter or early spring. Also keep the old wood well trimmed out of the bushes, and always burn promptly the parts cut out.

#### THE CURRANT AND GOOSEBERRY FRUIT MAGGOT (*Epochra canadensis*)

A two-winged fly about the size of an ordinary house-fly, but yellowish brown in color and with dusky bands across the wings, appears among the bushes when the berries are about half grown and "stings" the fruit with its sharp ovipositor. In each puncture an egg is deposited just beneath the skin as shown at e, and the punctured spot turns dark, as shown at a, Figure 14.

The eggs soon hatch into little white maggots that eat into the seeds and cause the berries or currants to turn red and drop. When fully grown, the maggot leaves the fruit and works its way beneath the surface of the ground, where it stays until the next summer, when it comes forth again as a fly to lay eggs upon the next crop of gooseberries and currants.

Remedies—Insecticides are useless here. If the stung fruit could be gathered and destroyed every day or two, there would be fewer flies another year. If the surface of the ground is well turned under during the fall or early spring, many of the insects would be prevented from emerging. Thorough cultivation close to the plants throughout the season would do much to keep this insect in check.

This is probably our worst currant and gooseberry pest in Colorado, and as it also attacks the wild currants and gooseberries, it is likely always to be rather common in the mountainous districts.

#### CURRANT SAW FLY (*Pristiphora grossulariæ*)

A green larva, about half an inch long when fully grown, feeding upon the leaves of currant and gooseberry bushes. Appearing late in June and again about the last of August. The adult insect is a black, four-winged fly about the size of a house-fly. The eggs are deposited, one in a place, under the epidermis of the leaves.

Remedies—The best remedy for this pest is white hellebore, dusted lightly over the foliage in the evening. If

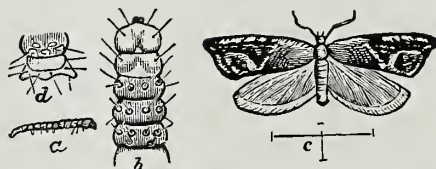


FIGURE 16—STRAWBERRY LEAF ROLLER  
a, Larva, natural size; b, Head end of larva, enlarged; c, Moth, about twice natural size; d, Tail end of larva, enlarged. (After Saunders)

this is carefully done, nearly every larva can be found dead under the bushes next morning. Arsenical sprays may be used either dry or in water, as for other leaf-eating insects. These poisons should not be used before the currants are picked. Pyrethrum may be safely used at any time.

#### THE CURRANT AND GOOSEBERRY FRUIT WORM (*Zophodia bella* Hulst)

A flesh-colored worm, looking very much like the apple worm and about two-thirds of an inch in length when fully grown; also attacks the gooseberries and currants in Colorado and often destroys a very large proportion of the fruit. Leaves and fruit are loosely webbed together by the worm, which feeds upon the berries. It eats a hole

large enough to enter, and after devouring the whole interior of one berry it goes to another. The adult insect is a gray moth with rather long, narrow wings. The insect and its injuries are shown in Figure 15.

Remedies—Poisonous sprays would no doubt kill many of these worms but they would render the currants and gooseberries unsafe to be used at food. If one has a few bushes only for home use, the worms could be nearly all destroyed by pinching the web clusters of fruit between the thumb and finger every day or two, until no more appeared. Thorough cultivation would also destroy a large proportion of the chrysalids that spend the winter near the surface of the ground about the bushes.

#### Insects Injurious to the Strawberry STRAWBERRY LEAF ROLLER (*Ancylis comptana*)

Small, brownish or greenish larva, attaining a length of nearly half an inch and having the habit of folding the leaves of the strawberry. In these folds the larva lives and feeds and finally changes to a small, rust-colored moth with white markings on the wings. See Figures 16 and 17.

Remedies—When the fruit has been gathered, scatter straw over the vines and burn it. Arsenical sprays may be used, but the worms are so protected in the folded leaves that it is difficult to get a poisonous dose to them. The vines will put up a good growth of tops after the burning, if it is not done too late.

#### STRAWBERRY CROWN BORER (*Tyloclerma fragariae*)

A small, yellowish-white grub boring into the crown of the plant during the summer.

Remedies—Burning as for the preceding species will destroy a large proportion of the borers. Do not allow the plants to become very old, but plow each year, or once in two years, as soon as the berries are picked, and start a new bed at some distance from the old one. Poisons are of doubtful value.



Courtesy of Dickson Land Company, Vernon, British Columbia  
ORCHARD SCENES AT VERNON, BRITISH COLUMBIA



# INTERESTING EXPERIMENTS WITH SPRAYING

BY B. F. HURST

**W**HEN I was a boy I never heard of anyone spraying his trees, but when I grew older and came out West and saw people making a business of fruit-growing as they do out here, I soon saw that, if it was to be a paying business, spraying was a necessity. At first I had very indifferent success with spraying, but I now feel quite confident when I spray that I am going to succeed in killing the pest that I am spraying for.

I find four things decidedly necessary in spraying.

In the first place you must be conversant with the habits of the insect which you hope to exterminate by the spraying. There are many of these insects which have never been studied closely enough for anyone to be exactly sure about certain phases of their existence. The climate has a great influence over the habits of the different insects against which we have to battle. For instance, the extremely hot days of midsummer drive the aphids completely away from the trees. Then again, the cool days of the spring retard the appearance of the codling moth.

Second, a great deal depends on the strength of the solution that is used in spraying for the different insects. I have found the lime and sulphur solution the most satisfactory in spraying for the San Jose scale. I have found, that to have satisfactory results, the spray after it is diluted must contain 3 per cent sulphur and 2 per cent of calcium of lime. Some contend that as strong a solution as this is not necessary to kill the scale, but it seems poor economy to me to use a weak solution and only kill about half of the scale or have to touch up the tree the second time, when by using a strong solution it can be completely killed by one spraying. There ought to be a law

compelling the manufacturers of the commercial spray to guarantee a certain per cent of lime and sulphur, so that the users might know what proportion to use. The home-made does not need to

These were so badly affected by the scale that in no place on the tree could a piece of bark be found which was not affected, and today in this orchard not a particle of scale can be found. This



Engraved by Hicks-Chatten Co., Portland, Oregon

J. C. RISTAU DISPLAY AT SPOKANE NATIONAL APPLE SHOW, 1909

be quite so strong as the barreled, as the excess lime which the home-cooked contains forms a body which holds the liquid from running off the trees. I find it really easier to kill the scale on a tree which is badly affected than on one on which there are only a few, as the scale forms a body to hold the spray on the tree. Last year I sprayed a small orchard of thirty-year-old trees, which had never been sprayed before.

was done by using the spray made by cooking ninety pounds of sulphur with ninety pounds of lime, according to directions given by me in "Better Fruit" for April, 1909, and diluting with enough cold water to make three hundred gallons. This was accomplished by spraying only once. I think we shall find in a few years that the lime and sulphur spray will be used entirely for all fungus diseases instead of the bordeaux mixture, since the lime and sulphur solution, if used weak enough, would not injure either the fruit or foliage. It has already been proved to be more satisfactory in eradicating mildew, apple scab, and bitter rot than any other spray material.

For all eating insects I consider the arsenate of lead the only spray to use, because when once put on the leaf it is always there until the leaf drops in the fall. This may be used at a strength of from two to six pounds to the 100 gallons of water; the strength depends on the method that you have in spraying. I use six pounds to the 100 gallons the first spraying and four pounds to the 100 gallons the rest of the time in spraying for codling moth. For the slugs on cherries I always use six pounds to the 100 gallons. This spraying should be done between the 20th of May and the 1st of June. There may be no slug eggs on the leaf at this time, but if the spraying is not done early the spray will be noticeable on the cherry after it is ripe. If the slug eats the few leaves that are added after this spraying the tree will not be damaged.



DOING EFFECTIVE WORK



The third important thing is the equipment. Any man that has as much as ten acres of apples should have a power sprayer. This should be speeded up to from 150 to 200 pounds pressure, while

below the cooking platform and is being filled.

The fourth important thing is the manner of applying the spray. A few years ago we considered it necessary to

reached and all is sprayed that can be reached from that position. Then, by driving slightly beyond the tree, as much more can be sprayed from this point, while a man on the ground sprays the same surface. Thus, by going up one row and down the next, the trees really receive four sprayings. In this way not only every calyx is filled, but every leaf on the tree is covered, both top and bottom, with the spray. By this method you can easily see that two pounds of arsenate to the 100 gallons of water is no weaker than four pounds to the 100 gallons when the tree is sprayed but once, as the tree is just as thoroughly covered by the spray when you come up the second row as it was when you went down the first row. The first spray was, of course, thoroughly dried before the second one was applied, so you see you would have the same amount of poison on the tree as you would if your solution was four pounds to the 100 gallons.

By my experiments I am convinced that from 90 to 95 per cent of the eggs of the first brood of the codling moth miller are laid on the foliage. This last spring I put an apple limb in blossom into water inside of the hatching cage, and by turning a tall glass jar over the whole, was able to keep the whole limb fresh for three weeks. The millers laid a good many eggs on the foliage around the blossoms, and in ten days these eggs hatched. Some of the little worms commenced feeding on the leaves within one-half an inch of where the eggs hatched. If the egg was laid on the top of the leaf, the little worm went just over the edge of the leaf and commenced to eat. No worm ate on the top of the leaf. These worms were changed off of this limb at the completion of the three weeks to another limb, and about one-fifth of them lived the whole thirty-two days which completes this stage of their



B. F. HURST'S MIXING PLANT

you run two lines of hose with four Bordeaux nozzles. Your hose should be eight-ply rubber hose, each piece fifty feet long, tipped with a ten-foot aluminum pole which is fitted at the point of contact with a stopcock. The nozzles are held by a half-circle at the extreme end of the aluminum rod.

The accompanying illustration shows my apparatus in use. As you see, the spray pump and gasoline engine are on the back part of the wagon while the front is taken up by a round, galvanized iron tank which holds 300 gallons. This tank is fitted with an agitator which is run by the engine, or turned by the man who runs the engine and drives the team. This agitator I consider a very necessary thing as, by its use, the heavy particles in the spray are kept in constant suspension. If the liquid is not kept well agitated (which is one of the most common failures among sprayers) some trees will be well coated with the spray while others will simply be sprayed with water.

I think a supply-wagon another necessity, since, by its use, the spray can be brought from where it is cooked to the spraying outfit and the spraying is only stopped about three minutes, during which time the spray is emptied from the supply tank into the spray tank. This supply wagon can be seen at the right of the second illustration. This wagon is built so that the bottom of the supply tank is as high as the top of the spray tank. The liquid is let out of the supply tank by a four-inch pipe at the bottom of the back end of the tank, which is fitted with an elbow, which, when it is turned one-half over, releases the liquid. We use a six-inch trough to connect the two tanks. In the illustration, the supply wagon is in a low place

spray from five to ten times for the codling moth; at the present time from one to four times is all that is recommended. One method of spraying for the codling moth is to fill the calyx of the apples with the spray. When that is the idea to be followed, spraying from a tower seems advisable, as about two-thirds of the apple calyx turn upward. In following this method with large trees the same outfit is used as I use, except that the end of the rod is bent to an angle of 45 degrees. The outfit is stopped just before the tree is



FAMOUS HOOD RIVER NEWTOWNS AND SPITZENBERGS ON SALE IN NEW YORK CITY





FAMOUS HOOD RIVER NEWTOWNS AND SPITZENBERGS ON SALE IN NEW YORK CITY

existence as a worm. This explains why orchards that were bare of apples this year will still have a few worms next year.

Another limb with small apples and no leaves was treated the same way. The millers laid the eggs on the apple, and after the eggs hatched the worms staid on the surface of the apple two days before they entered the apple any place. One apple showed ten marks where the worms had eaten the skin in two days. About one-half entered the calyx of the apple and the rest entered the side of the apples, or where the apples touched.

By these two experiments I came to the conclusion that the worm takes his first meal close to where he hatches, whether it be on the fruit or the leaf; and so I am more firm in my belief that every leaf and small apple should be thoroughly covered with the spray before the first brood of codling moth worms hatches. If the first brood is not exterminated the eggs of the second brood are laid largely on the apples. Thus, you see, if the first brood is not killed, it is impossible to keep the apples free from worms, no matter how many times you spray later. Many times you see several worm marks on the surface of the apple, yet the worm has never entered the core; these are caused by worms that have eaten the poison on the foliage, but, as it takes at least five hours for the poison to kill the worm, the poison did not take effect until the worm reached the apple and ate through the skin.

If you have followed me closely, you will see that the worms ate only on the under side of the leaf, and that 90 to 95 per cent of the first brood of worms

eat their first meal on the under side of the leaves. Consequently, I think that the under side of the leaves require more thorough spraying than the apple, and by spraying just when the majority of the petals are falling, the outer calyx cups are filled with sufficient spray to kill all worms that may live to enter the calyx. The second spraying should be done ten days later. The object of this spraying is that there will be from one to three new leaves added to each cluster of leaves on the fruit spur around the apple, which must be covered. The tree should be sprayed again in thirty days to cover the additional new leaves.

To accomplish this, I find that the spraying is most effective done from

the ground, each of the two men thoroughly covering a tree, one on each side of the wagon. Each man circles around his tree, spraying from top to bottom in swaths four feet wide, which overlap so that every bit of the tree is completely covered. With the two-hundred pound pressure, if the man stands on the north side of the tree he sprays the north side of the limbs on the south side of the tree, even though the tree is large. This has been tested by tying a handkerchief to a large tree on the opposite side from which the man was spraying. After the tree was sprayed the handkerchief was as wet as though dipped in water. If you were spraying with only eighty to one hundred pounds pressure you would have to poke the rod through the tree to reach the inside of the opposite limbs, as you can not spray the north side of the limbs on the south side of the tree while standing on the south side of the tree, consequently it must be sprayed from the other side. This explains why the man with low pressure can not obtain the same results as the man who has two hundred pounds pressure, nor can he spray the same number of gallons with the same pump as the man with the high pressure does. A man with a hand pump can only spray from 1,200 to 1,500 gallons in ten hours with two lines of hose and three men; I spray with my outfit, 3,600 gallons in ten hours with four men. The man that uses the platform will spray 1,000 gallons less than I spray, as the weight of the tower and the man makes a difference of at least 800 pounds. This makes it impossible for the team to pull within one hundred gallons as much spray as mine do, and so he is compelled to fill his tank oftener. He will spray from one-third to one-half less trees than I do, as I will spray half the tree while both the men (the one on the ground and the one on the tower) cover the same half of the tree.

By observing these four points I have succeeded in ridding my orchard of scale, and in having my apples from 99 to 100 per cent free from worms.

UTAH EXHIBIT AT THE UNITED STATES LAND AND IRRIGATION CONGRESS  
CHICAGO, NOVEMBER, 1909



# CONTROL OF THE CODLING MOTH IN THE WEST

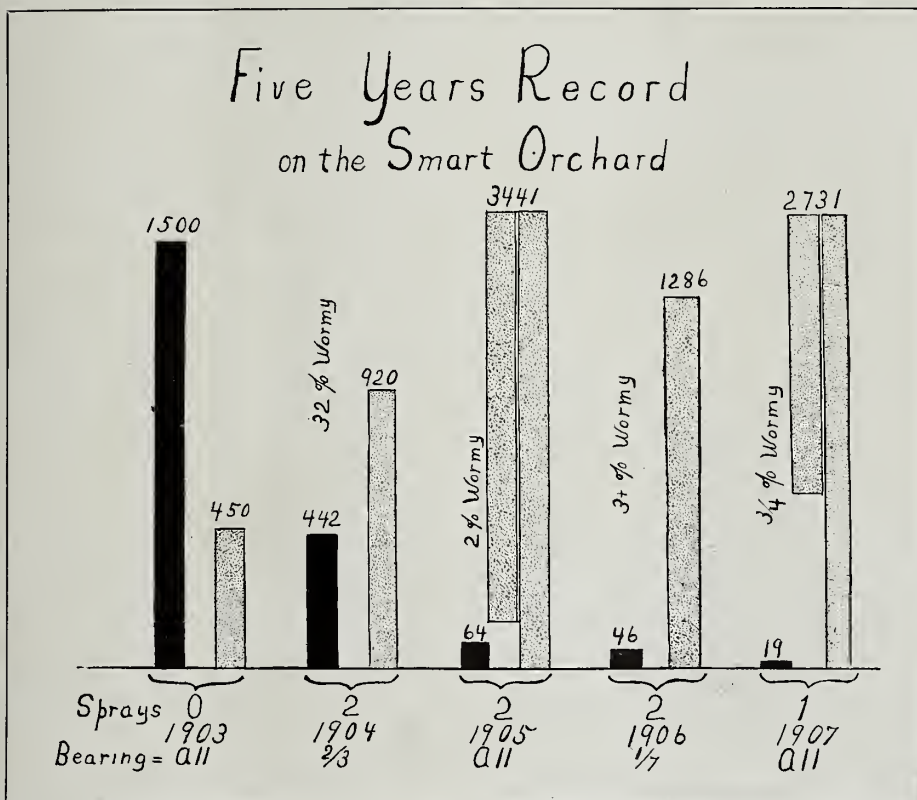
BY DR. E. D. BALL, DIRECTOR OF EXPERIMENT STATION, LOGAN, UTAH

THE writer spent several months the past season in visiting the larger orchard districts west of the Rocky Mountains, for the purpose of investigating methods and results of the use of arsenical poisons. While the

spray had been applied thoroughly in most cases, reaching every calyx cup in the first application, was ascertained by the lack of calyx wormy apples. Some, of course, had failed to get the poison in on time, and some had used the misty

ber of sprayings later in the season, and omit this one, but almost everywhere where the codling moth was controlled with two or three sprayings, this was one of the number and was applied in the same way and as thoroughly as the first, still more care being taken to see that the spray was driven straight between the calyx lobes.

The equipment for these driving sprays was, in a large number of cases, the gasoline engine outfit with its large tank and tower. In a number of places too many leads of hose were used, thus cutting down the efficiency of the work. Two leads of twenty-five feet each and the single bordeaux nozzle to each lead seemed to have done the most efficient work where other conditions were complied with. Where more than two leads were used, two were usually used from the tower, spraying down into the tops of the trees, and the third following behind with a still longer hose, spraying up under and finishing up the lower parts of the trees. Especially in the western Colorado districts is this under spraying commonly practiced. In thick and neglected orchards, where the spraying outfit has to force itself between the trees, it may be necessary to have something of this kind, but one should not have that kind of an orchard. Where the orchards are open and there is room to move a pole all around the head of a tree, there does not seem to be any advantage in this method, at least judging by comparison of results where it was and was not used. The codling moth, as a rule, does not seriously injure the apples underneath the head of a tree, laying many more eggs on the more exposed parts of the tree near the top, and even if these apples were in danger of infestation, they can be reached as easily and much more agreeably from above by using the angle, than from the



investigation was primarily to ascertain the effect of the poisons on the trees, still the method and number of applications of spray were also ascertained and the effects studied. The writer was struck by the remarkable similarity in method and general agreement as to the principles involved throughout most of this territory. Minor modifications in method were found in various localities, with corresponding differences in equipment and other details, but the basic principles underlying the method practiced in practically all of these localities were the same.

Almost without exception the driving calyx spray, applied within a few days after the petals dropped from the apples, was the foundation upon which the different methods rested. This spray was given from above down, and from the sides into the blossoms, as they stand upright on the tree. In most cases some sort of a tower was used to bring the operator well up on the level with his work. The bamboo pole of eight to twelve feet in length is almost universal, and the crook on the end allows the spray to be turned in any direction. Quite a variety of nozzles were found in use for this spraying. The flat "bordeaux" or "bean-double" type, set as wide as possible without dripping, was, however, the favorite one where the best results were obtained. That this

application, and here the calyx worms were in evidence.

The second calyx spray, applied from a week to ten days later than the first one, was not as uniformly adhered to. Some would make up by a larger num-



WINTER TIME IN THE ORCHARDS IN THE UPPER HOOD RIVER VALLEY





## HOOD RIVER APPLES

Scenes showing orchard avenue, apples on the tree, picking and good packing. Upper two boxes packed by the Editor for display. Packed apples properly wrapped. Packing house interior and packed apple boxes nailed and labeled, ready to ship.

ground where all the drip, not only of the operator's own nozzle, but also of those in the tower above, is encountered. In a number of cases extra labor was being performed by the operators in the tower through not fastening their hose in a loop to the bottom of the platform on which they stood, as in this way much of the weight of the long hose is avoided and it is much easier to handle the pole thus relieved of unnecessary encumbrance. In many small orchards good work was being done with the double-acting pumps and even with the larger sizes of barrel outfits,

where the pressure was maintained. It is much easier, however, to make a mistake with these smaller outfits and fail to secure the pressure necessary to drive the spray home, than it is with the larger ones, but even here by using too many nozzles, the efficiency is often greatly reduced.

Many improvements have been made in spraying outfits in the past few years. Almost all outfits are now equipping their poles with the angles, or else a nozzle set directly on an angle, and the cumbersome types of cut-offs at the bottom of the pole are being replaced by

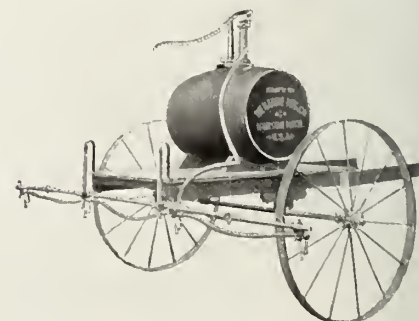
light and convenient half-turn ones. The latest acquisition is a round tower with a revolving seat for the operator, thus doing away with the cumbersome railing. It would seem that there is little left to be desired unless it is possible that the future will introduce the aeroplane and eliminate the hauling around in the mud.

**Banding**—This seemed to be the most neglected feature of the entire process of handling the codling moth. A large percentage of the growers used bandages, but only a small percent of those that do use them are careful enough to secure bands that are large enough and thick enough to be of much value.

A band should be of material thick enough so that light will not penetrate, or else, where made of thinner material, it should be folded until it affords a dark hiding place for the worms, as the worms are not satisfied with a shelter that does not exclude the light. Where heavy bands are used of good width, and drawn tightly at the top, it is possible to entrap over two-thirds of the worms on the trees. A single thickness of heavy canvas, or preferably, a double fold of burlap wound twice around the trunk of the tree is the most satisfactory. These bands should be put on about a month after spraying and removed every ten days until the first brood of worms is all down, which will occur early in August. After this, they may be left on until the apples are picked, when they should be removed and stored over winter. For killing the worms under the bandages, there is nothing better than the small blade of a jackknife.

**Later Sprays**—There is no uniformity in the practice of applying later sprays. In some sections the spray is applied just as the worms of the first brood are entering the apples, while others depend on the early sprayings to control the first brood and put on a later spray when the second brood of worms appear. These sprays are usually applied in the form of a mist, the aim being to cover the apples as completely as possible. It is not necessary to be as particular about the pressure in these later sprays. The higher the pressure, the more rapid the work, however, and as these sprays are only continued to the dripping point, they are applied more rapidly than the driving ones, where each individual blossom must be sprayed.

**How Many Sprays Are Necessary?**—It is impossible to give any hard and

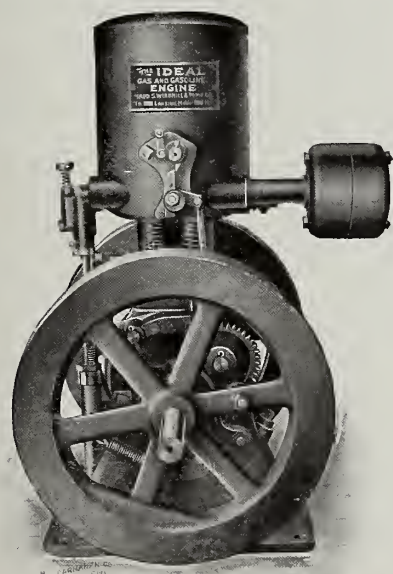


STRAWBERRY SPRAYER ON CART.  
Can also be used for potato sprayer. Hardie Manufacturing Company, Hudson, Michigan

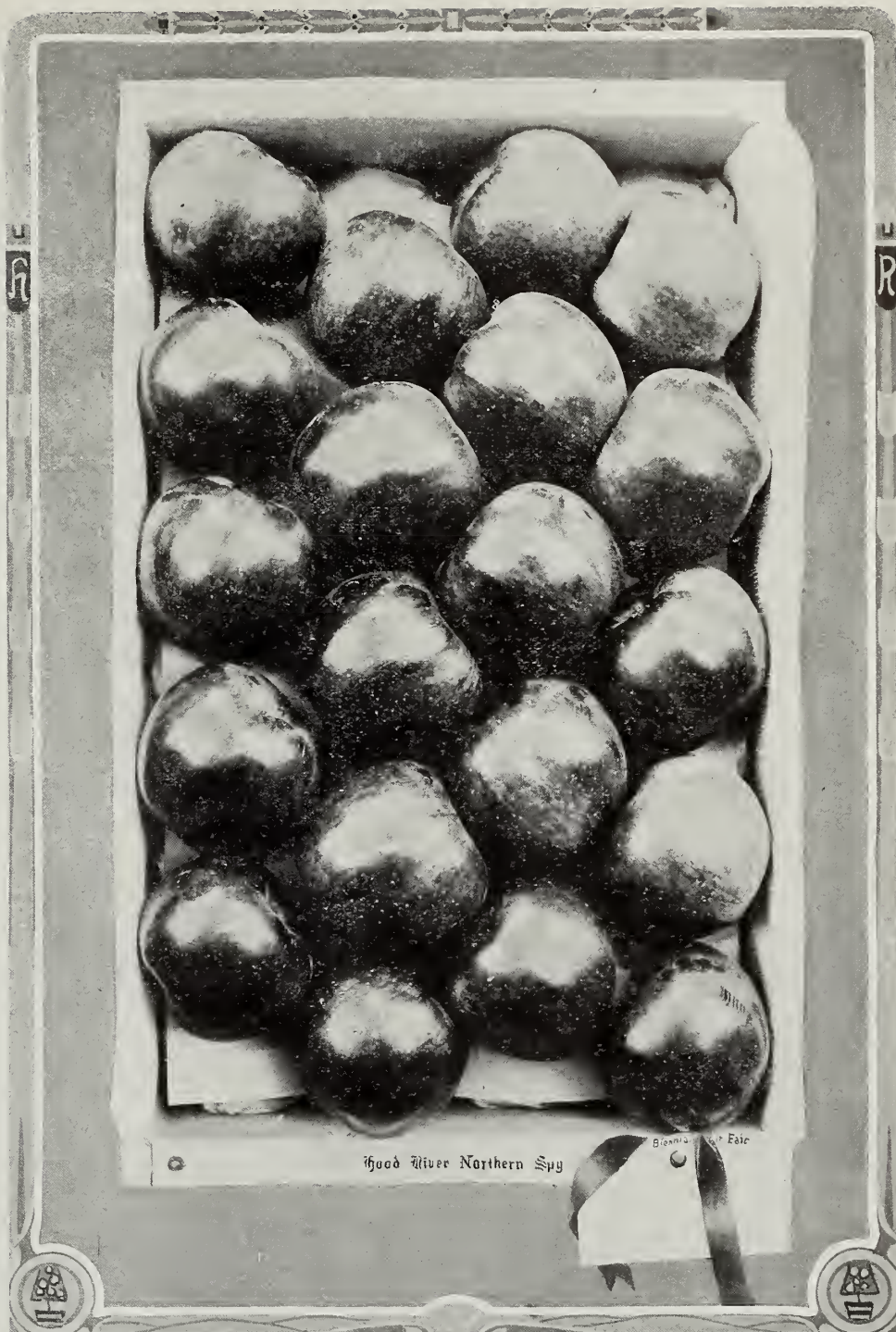


fast rule on this point. Local conditions, the variety of apples and the character of the season all have their influence. The tendency everywhere has been to reduce the number of sprays and increase the efficiency of those applied. The writer would recommend that under ordinary conditions, the first two sprays be given thoroughly and carefully; that the trees be properly banded; and then, if two per cent or more of the apples are wormy in the first brood, later sprays should be put on to help reduce the number of the second brood. Successful spraying for western conditions demands that each year the number of worms in the orchard be reduced below that of the previous season. If this is not done, there is no advancement and the orchardist should continue his warfare until he is satisfied that he has reached that goal. If this method is followed out, it will be possible to gradually reduce the number of sprayings as the worms are reduced in numbers. Where the total worminess of the year is less than two per cent, two sprayings without banding will usually keep them down, or one spraying and the use of bands will accomplish the same results.

Is One Spraying Enough?—The worms have been worse this season than for several years previously, with the result that a number of orchardists who had been controlling the codling moth easily in the past and had gradually reduced the number of sprayings, were not as successful this year, and in a number of localities the writer found orchards in which there were far too many worms for profit, through a too rapid reduction in the number of sprays. The point has been raised that even if an orchard showed five or more per cent wormy at picking time this year where the previous year there had been less than one-half of one per cent, that the spraying could not be said to have been unsuccessful. Let us carry the matter one step further and see where we come



FOUR CYCLE HIGH CLASS ENGINE  
Special cooling system and speed changing device. The Hardie Manufacturing Company, 22 Front Street, Portland, Oregon



PRIZE BOX OF NORTHERN SPYS, GROWN AND PACKED BY EDITOR OF BETTER FRUIT

out. An increase from one-half per cent to five or more is an increase of ten times in the number of worms present. If that same increase should be allowed to take place again another year, it would mean that the orchard would pick fifty per cent wormy the second year. Could that be called successful spraying? There were, however, a considerable number of orchards in the western country in which only one spray was used and in which the worms were controlled, but these were orchards in which, as the result of a number of years' work, the number of worms had been reduced to a minimum and the method of spraying had been highly perfected.

The Amount of Poison to Use—It is a little hard to estimate just exactly how much more severe the worms were this year than in previous years because in most sections, as the result of recent agitations, there was a tendency to reduce the amount of poison used in the mixture, to be a little more saving in the application of the spray material as well as to reduce the number of sprays. As the result of all of these factors, the worms increased in numbers in almost every section. While it is probably true that the amount of poison formerly used can be reduced, it seems equally certain that the reduction was carried too far in some cases this season. In experiments carried on this year, four pounds of poi-



son per one hundred gallons of water gave considerably better results than two pounds did on an adjoining tract. It seems best, therefore, to recommend the use of at least three or four pounds of arsenate of lead to one hundred gallons of liquid.

Are the Trees in Danger?—The writer's investigations throughout the West were primarily to ascertain whether the arsenical sprays were threatening the life of the trees. The results of the investigation and of experiments carried on along the same line, are being prepared for publication. This publication may be anticipated, however, to the extent of saying that although a large number of trees were found sick and dying in different localities, in every case there were plainly evident other reasons for the conditions. On the other hand, the oldest and most heavily sprayed orchards, located under proper soil conditions, showed no ill effects at all from the arsenicals applied.

In conclusion, it appears that the western success in spraying is based primarily on the thoroughness with which the poison is driven into the calyx cup.

That some orchardists use for this purpose one spray, and some two.

That the better orchardists use the banding system until they have reduced the worms to one or two per cent.

That the number of late sprays used is variable and depends partly upon how thoroughly the driving spray was applied.

That successful spraying requires that the number of worms be gradually reduced.

## GREEN APHIS AND WOOLLY APHIS

BY C. P. GILLETTE, FORT COLLINS, COLORADO

THESE two plant lice have become pests of the first importance in orchards. Wherever the green lice were seen curling the leaves of the apple trees in the fall, there the little shining black

better to spray a little early than to delay too long.

Spray to Use—Probably the best spray to use, all things considered, is lime-sulphur mixture prepared as follows:



VIEW SHOWING INTERIOR OF COLISEUM, BEING PANORAMA OF THE SACRAMENTO VALLEY, CALIFORNIA, WITH FRUIT EXHIBITS, AT NATIONAL LAND AND IRRIGATION CONGRESS, CHICAGO, 1909

eggs may be found now upon the twigs. To keep this louse in check, the trees should be sprayed thoroughly just before the buds open. The later the spray can be made the better, provided it is made before the buds open enough so that the lice can crawl down among the opening leaves for protection. It would be

Good lump lime.....	30 pounds
Flowers of sulphur.....	30 pounds
Water .....	100 gallons

Add enough warm water to the lime to slake it, and while it is slaking add the full amount of sulphur, which first should be thoroughly moistened with hot water. Sulphur will mix easily into the water if a little soap is added. Keep



YOUNG ORCHARDS IN THE WHITE SALMON VALLEY, WASHINGTON

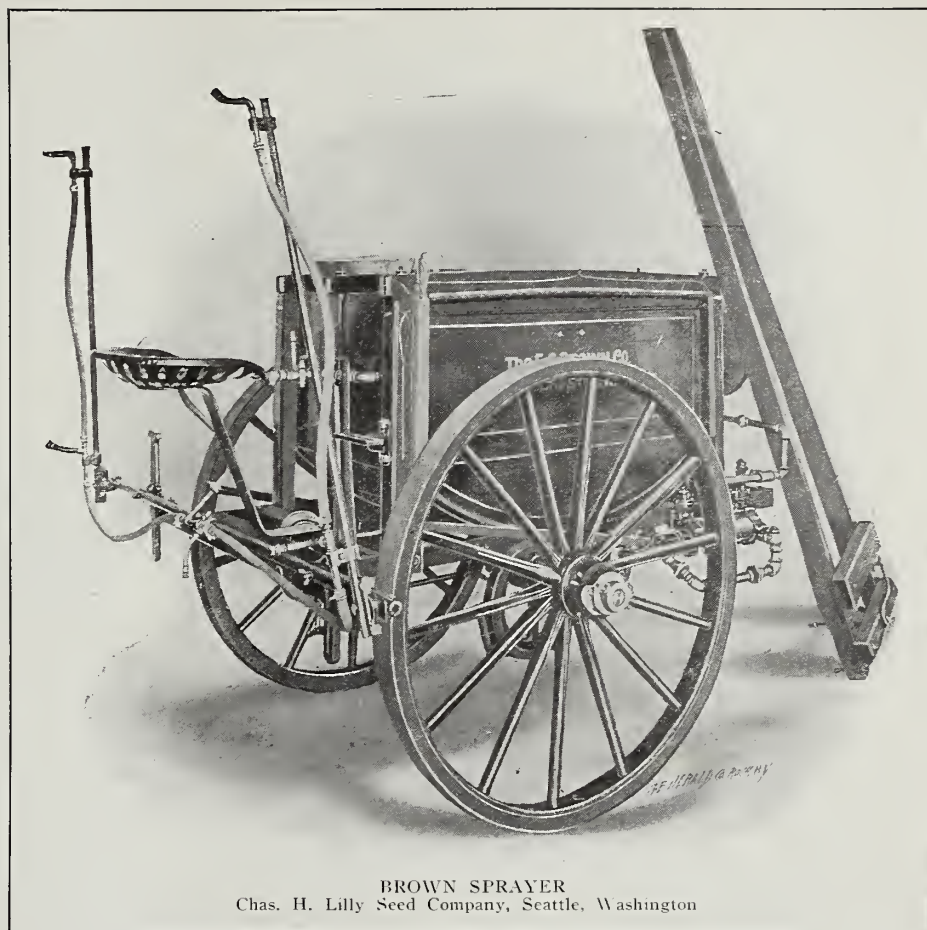


the lime and sulphur boiling vigorously over a fire, or by means of a jet of steam, for about forty-five minutes, or until the liquid is of a deep brick red color. Add water when necessary to keep the mixture quite thin while cooking. When the cooking is finished, add enough water, cold or hot, to make the 100 gallons of spray, and pass the whole through a strainer or a piece of gunny sacking to take out all lumps that will clog the spraying nozzle, and apply at once to the trees in the form of a spray. Manufactured lime-sulphur may be used instead of the home made article, putting one gallon in eight to ten gallons of water. If material is not at hand for the lime-sulphur spray, kerosene emulsion that is about one-tenth kerosene, or one of the fish oil or whale oil soaps in the proportion of one pound of soap to six gallons of water may be used instead. A tobacco decoction may also be used, if preferred, in the proportion of one pound of the tobacco to each three or four gallons of water. Steep the tobacco for an hour, at least, before using, and see that the dust is not mostly sand.

The above sprays, except the last are for use while the trees are dormant (before the buds are open) only.

The woolly aphis has survived the winter in large numbers and is just beginning to secrete its cottony covering in the warmer sections of the state. All infested orchards should be sprayed at once, to destroy the lice on the tops. The whole trunk should be drenched, and it will be well to wet the ground about the crowns of the trees also, as here is where a great many of the lice spend the winter.

Use any of the sprays recommended above for green aphis, and apply with a good deal of force, so as to wet through any secretion that may have formed upon the bodies of the lice for their protection. While these spring treatments may be all that are needed, it is not unlikely that summer treatments may also be needed in many instances. In this case remember that the lime-sulphur mixture is for dormant trees only. The



BROWN SPRAYER  
Chas. H. Lilly Seed Company, Seattle, Washington

other sprays may be used after the trees are in full leaf in the following proportions: Kerosene emulsion that is one-fifteenth kerosene; fish oil and whale oil soaps in the proportion of one pound to eight gallons of water, and tobacco decoction in the proportion of one pound to four gallons of water.

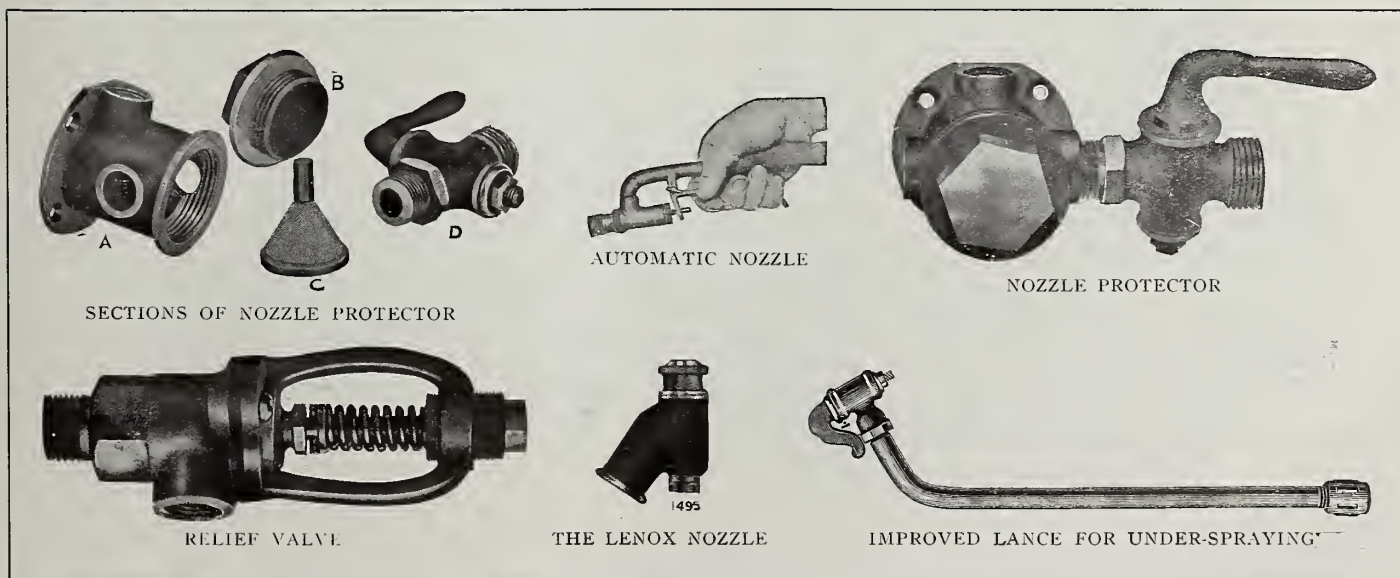
In all cases spray thoroughly and forcibly, and for the green aphis direct the spray chiefly from below.

By spraying early you will also avoid killing many of the lady beetles and other enemies of the lice that are killed with the lice in the later treatments.

Communicate freely with the experiment station whenever troubled with insect pests and send specimens when possible.

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THE city and district where "Better Fruit" is published are not responsible for the articles that appear in this magazine, and consequently should not be praised, censured or blamed. If you want to thank anybody, thank the editor. If you have any fault to find, write the editor, who is always ready to grant any reasonable request publicly in the next issue.



SECTIONS OF NOZZLE PROTECTOR

AUTOMATIC NOZZLE

NOZZLE PROTECTOR

RELIEF VALVE

THE LENOX NOZZLE

IMPROVED LANCE FOR UNDER-SPRAYING



# SOME POINTS ON SPRAYING FOR CODLING MOTH

BY C. P. GILLETTE, OF THE AGRICULTURAL EXPERIMENTAL STATION, FORT COLLINS, COLORADO

**G**ET ready for the work as soon as the first apple blossoms begin to open. Do not fail to begin the first spray as soon as the blossoms are nearly (say 90 per cent) off.

Have outfits enough to complete the first spraying within six or eight days from the time it is begun; or if you have varieties that bloom at different times, arrange the work so that none of the trees will have to wait more than one week from the time the petals are off until the trees are sprayed.

A good power outfit for spraying will do to take care of about twenty acres of apple orchard that is twelve or more years of age. It will be a mistake to expect it to do much more than this.

Large trees require from six to twelve gallons of liquid each for a thorough first spray. If the average is eight gallons and there are eighty trees to the acre, it will require sixty-four tanks of two hundred gallons each to make the application.

If the weather is warm, some varieties will close their calyces within six days from the time the petals are off, and the little apples that close their calyces first are the ones most likely to set and make fruit.

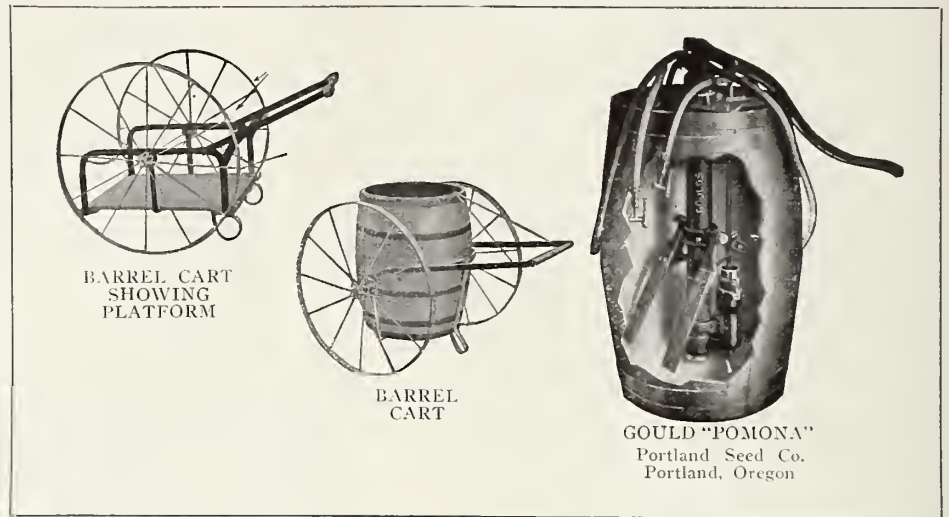
When making the first spray you must determine upon one thing if you are to get anything like perfect fruit, and that is to stay with each tree until every calyx has been filled with the spray. Stop occasionally to examine the blossoms to find out whether or not you are doing this. This is of more importance than all the rest of the advice of this bulletin put together.

Thorough first spraying can not be done, except with a great waste of material, with a short pole by men standing upon the ground. Do not spray all sides

of a large tree at one stop; spray only the halves of the tree next to the wagon upon either side.

With large trees, always have a tower or platform above the tank where two men may stand with long rods to spray

(The writer has used sulfide of arsenic with success the past summer. Its use was suggested by Dr. Headden because of its extreme insolubility and consequent slight danger of injury to trees. A full report of its use will be printed in



downward while one or two men with short poles upon the ground spray upward through the trees.

A pressure of 150 pounds is sufficient to do good work if proper nozzles are used.

Use a good quality of poison and little or no lime. I prefer to use no lime with arsenate of lead. With paris green use the same weight of lump lime that you use of the poison. Good results may be obtained by the use of any of the common arsenical preparations. One of the standard brands of arsenate of lead, however, is probably the best poison to use.

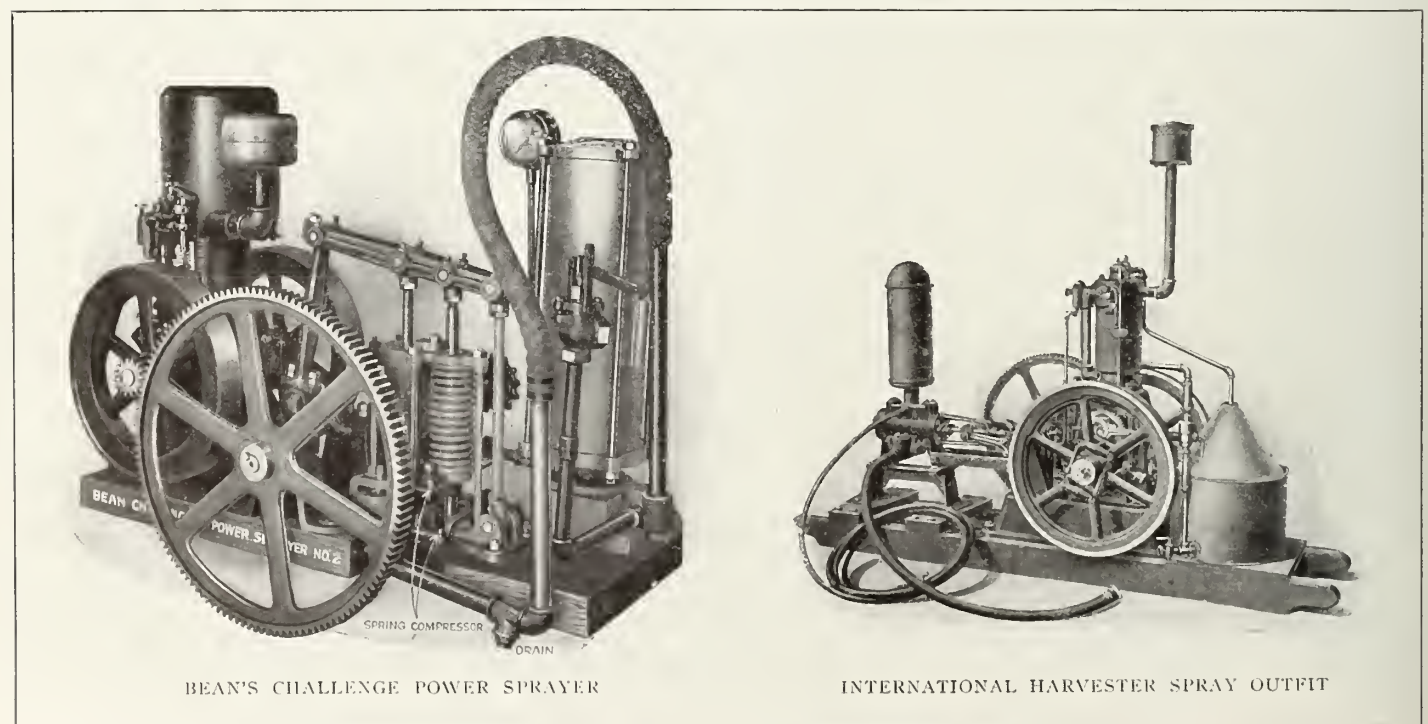
the Journal of Economic Entomology in the near future.)

Use two to three pounds of the poison to each 100 gallons of water.

Make this first treatment so thorough that it will not be necessary to repeat in ten days.

If your apples were fairly free from worms last year, and if you do not have near neighbors who have rather wormy fruit, this first spray should give you better than 90 per cent of fruit free from all worm injuries, and may give better than 95 per cent.

If the orchard is likely to receive many moths from neighboring trees, I believe





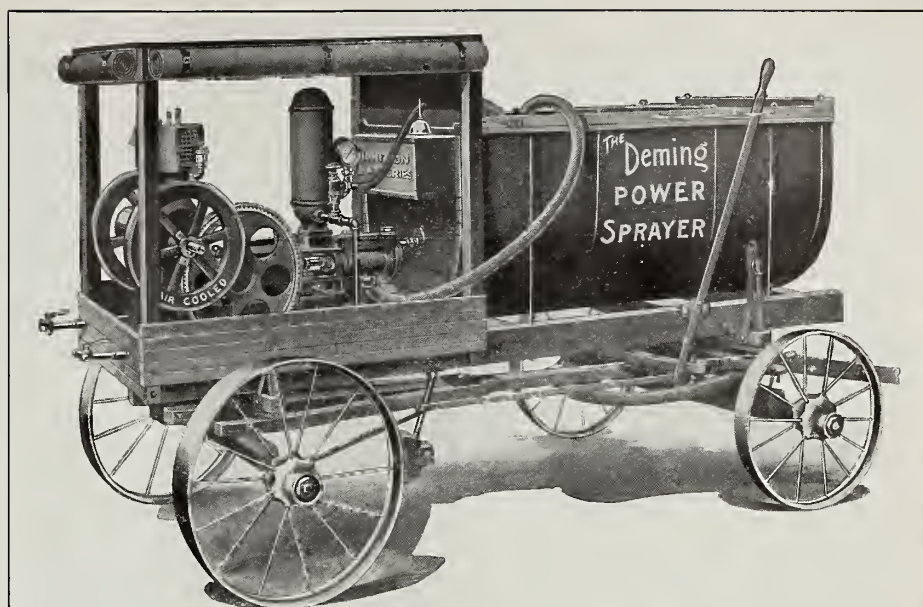
it is advisable to spray a second time, about four weeks after the first, as that will be just as the first brood of worms begin to hatch and eat into the fruit. The poison is already in the blossoms; now, with a very fine spray of the same strength as the preceding, cover lightly all the apples and leaves to catch all worms that attempt to feed outside the blossoms.

Unless infestation from neighboring orchards is severe, these two treatments should be ample. If the conditions are so bad that it is thought best to spray again, the logical time is seven weeks after the second spraying, or about the last week in July or the first week in August, as this will come just as the second brood of worms are beginning to hatch. During the summer this insect requires an average of forty-nine to fifty days to undergo its transformations from egg to egg, worm to worm, or moth to moth.

I believe it is rarely advisable to spray three times, and never to spray more.

In Colorado, those who are depending upon one, two or three sprays to control the codling moth are getting better results than those that spray a larger number of times. And then, everyone who has had much experience with arsenical sprays knows that arsenic is destructive to vegetation when present in too large amount. Dr. Headden has shown its killing effects upon apple trees and it can only be a matter of time when its constant accumulation in the soil will completely unfit the ground for the growth of any crop.

Avoid using strong alkali water, as the alkali dissolves the arsenic and increases its tendency to injure the foliage.



DEMING PREMIER POWER SPRAYER

Manufactured by The Deming Company, Salem, Ohio. Furnished with either 2½-h.p. or 3½-h.p. air-cooled engine. Will maintain 250 to 300 pounds pressure. Furnished with special tested brand of "Deco" high pressure hose. Has 250-gallon cypress tank. Very compact and strong. Made with steel wheels, as illustrated, or with wheels of solid wood, six inches wide. Sold by Crane Co., Seattle, Spokane, Portland, San Francisco; also by Wenatchee Produce Company, Wenatchee, Washington

Avoid allowing the spray material to run down and accumulate about the crowns of the trees, as it is likely to corrode the crown just beneath the surface of the ground, producing what Dr. Headden has called irritant arsenical poisoning, and what is sometimes popularly known as "collar rot."

Pass all water entering the spray tank through a fine-meshed sieve or strainer

to remove all particles that might clog a nozzle.

Never plant apple trees nearer than twenty-four feet either way in the rows or they will crowd so as to prevent good spraying as they become large.

If you fail to make the first application thorough and at the proper time, you will fail to get a clean crop of fruit, no matter how much you spray later.

When you have learned to spray most effectually, it will no longer be worth your while to use bands to catch the worms.

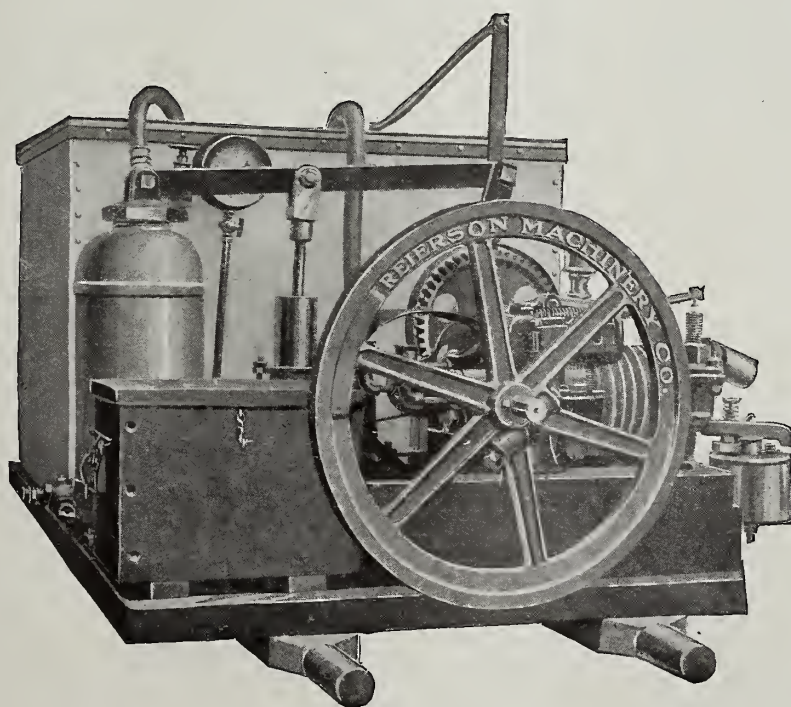
Protect the doors and windows of the fruit houses and cellars with screens that will not allow the escape of the moths that hatch out in these places.

Clean culture, and especially the stirring of the soil about the trunks of the trees, will prevent the worms from successfully undergoing their transformations under clods and about the crown of the trees.

Do not be discouraged because your neighbor does not properly attend to his orchard. You can get fairly good results anyway, and in this manner you will educate him to become a better orchardist and citizen.

The success of apple growing in this state must depend upon the reputation of Colorado apples. Their reputation at the present time is an enviable and just one, but it will quickly vanish into thin air just as soon as Colorado orchardists fail to keep up the high quality and honest pack of their fruits. So, for your own credit as well as for the success of Colorado fruit growing, do not forget, among other things, to do your best to grow big, perfect apples, free from worm holes and other imperfections.

The experiment station wishes to aid you. Feel free to ask questions, which will be answered, so far as possible.



PACIFIC POWER SPRAYER

Reiersen Machinery Company, Portland, Oregon



# SPRAYING FOR PEACH FRUIT SPOT OR FUNGUS

A. B. CORDLEY AND C. C. CATE, OREGON AGRICULTURAL COLLEGE, CORVALLIS, OREGON

**T**HE disease which is known by Oregon peach growers most commonly as "peach fruit spot," and also as "fungus," "shot-hole fungus," "peach spot" and "brown spot" has been in evidence for many years, during the past few of which it has occasionally caused no little loss. In some instances the crop has been so spotted that it could not be disposed of on the open market, and many tons of otherwise luscious fruit have been forced to the canneries or evaporators. Still more unfortunate is the fact that often a portion of the infested fruit is worthless and is left to decay on the trees and in the orchard, thereby harboring and spreading the disease so that year by year it may secure a firmer and surer hold upon each succeeding crop.

Under date of August 2, 1906, M. A. L. Kitchen, manager of the Ashland Fruit and Produce Association, forwarded to us a box of badly infested Hale's Early peaches with the accompanying statement: "Many of our peaches this year are affected with a disease which causes

spots on them much resembling scale." Later so many similar reports were received from most of the peach growing sections of the state that we decided to undertake a study of the disease and of the best methods of controlling it.

The results so far obtained indicate that one of the most important steps in controlling the disease is to spray in the fall with some good fungicide. Therefore, this brief bulletin is issued in advance of the more extended one which it is hoped to publish when the work has been completed, that growers may know what has already been accomplished and thus be prepared to spray this fall at the proper time.

The spraying experiments which were begun in the spring of 1907 were conducted the first season in co-operation with Mr. Benton Bowers, who contributed the use of his orchard near Ashland. During the two succeeding seasons the work has been continued in co-operation with Mr. Albert Joy, who purchased the orchard of Mr. Bowers. To

both Mr. Bowers and Mr. Joy we desire to express our hearty appreciation for the many courtesies extended.

The orchard in which the work was done consists of about twelve acres of fifteen-year-old trees, mostly Muir, with some Elbertas and Crawford's. It is well located, with a gentle slope to the northeast, and the soil, which is deep and of the decomposed granitic type, is considered excellent for peaches. Nevertheless the trees had generally been neglected, very little, if any, spraying had ever been done, and we were told that the orchard had never produced a profitable crop—such fruit as had been produced having been "spotted" and of but little value.

The object of the experiments was to compare the efficiency of bordeaux mixture and lime-sulphur in controlling the disease; and to determine the number of applications necessary and the best times at which they should be applied. During the first season's work the lime-sulphur was used only for the first application, before the buds started in the



THE SPRAYED PORTION OF THE ORCHARD PRODUCED A FAIR CROP (1907)



FRUIT FROM SPRAYED TREE. ONE SMALL BASKET INFESTED FRUIT FROM UNSPRAYED TREE. TWO BASKETS OF CLEAN FRUIT



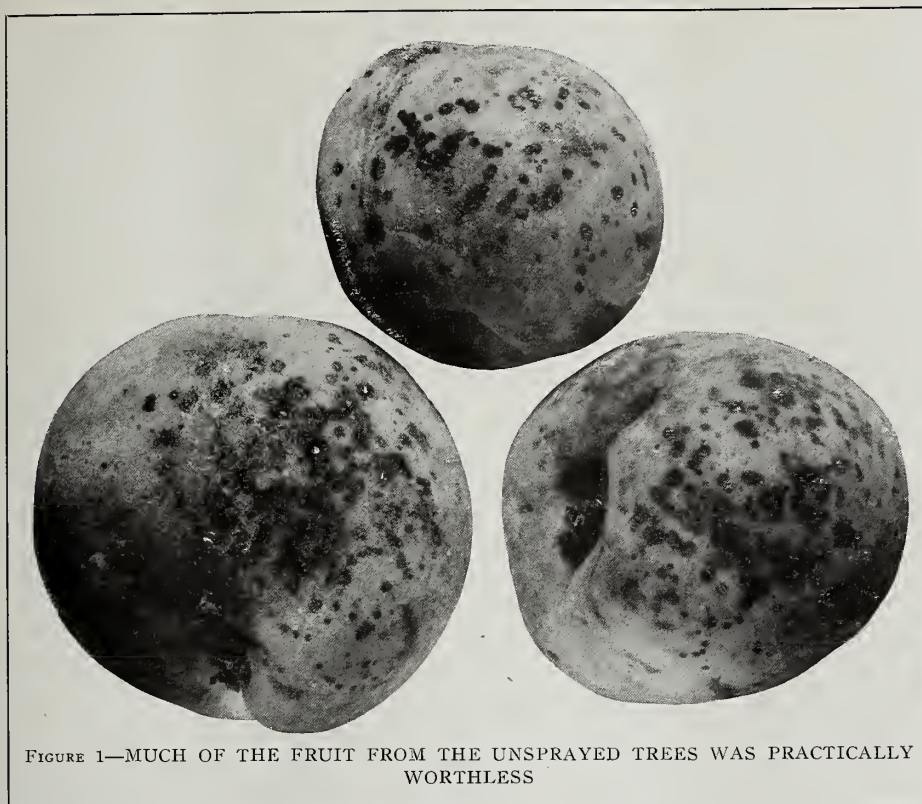


FIGURE 1—MUCH OF THE FRUIT FROM THE UNSPRAYED TREES WAS PRACTICALLY WORTHLESS

spring, but during all the later experiments it has been tested as well for the summer applications.

The first application in 1907 was made between February 27 and March 4, just as the first buds were swelling. A block of about two acres was sprayed with bordeaux mixture and the remainder with Phoenix lime-sulphur solution. Later the two-acre block, which comprised thirteen rows across the north end of the orchard, was subdivided into plots for the purpose of determining the relative efficiency of several different methods of treatment.

In the following table, which is intended to show the treatment given each plot and the results obtained, the various plots are numbered from one to thirteen while the columns which represent the various applications are lettered from "A" to "D," as follows: "A" represents the first application, made February 27 to March 4; "B" represents the second application, made April 30; "C" represents the third application, made May 15; "D" represents the fourth application, made June 1; "E" shows per cent of infested fruit at picking time.

The first application was made just as the buds were swelling; the second soon after the blossoms fell; the third when the fruit was about one-half inch in diameter; and the fourth when it was approximately one inch in diameter.

A glance at this table leads to the conclusion that the results of the season's work were far from satisfactory. This is not true. Upon visiting the orchard shortly before the fruit was to be gathered and making a critical examination of the various plots, we were much impressed with the very marked difference in the fruit on the sprayed and unsprayed trees. The fruit upon those

trees which had received all four applications appeared to be almost free from spots, while all of that upon the unsprayed trees was more or less

TABLE I.—SHOWING RESULTS OF SPRAYING FOR PEACH FRUIT SPOT IN 1907

Plot	"A"	"B"	"C"	"D"	"E"
1.....	.....	.....	.....	.....	99
2.....	.....	.....	.....	.....	99
3.....	L. S.	.....	.....	.....	100
4.....	L. S.	.....	.....	.....	100
5.....	L. S.	Bord.	.....	.....	95.4
6.....	L. S.	Bord.	.....	.....	95.4
7.....	L. S.	Bord.	Bord.	.....	89.3
8.....	L. S.	Bord.	Bord.	Bord.	56.4
9.....	Bord.	Bord.	Bord.	Bord.	28.3
10.....	Bord.	Bord.	Bord.	.....	75.9
11.....	Bord.	Bord.	.....	.....	96
12.....	Bord.	Bord.	.....	.....	96
13.....	Bord.	.....	.....	.....	99

infested, and much of it was worthless. Moreover, the foliage of the sprayed trees was in much better condition and the trees were evidently more vigorous. The results were so marked that casual visitors to the orchard noted them and inquired the cause. The discrepancy between these observations and the final results as exhibited in the above table is explained by the fact that in estimating the percentage of infested fruit, only two grades were considered, viz: "clean" fruit and "infested" fruit. A single spot upon a peach, while it would scarcely impair its market value, was sufficient to class it with the culls. Therefore, while much of the infested fruit from the unsprayed trees was practically worthless (Figure 1), nearly all of the so-called culls from the trees which had received the four applications could have been marketed as second, and much of it as first grade fruit. (Figure 2.) Had the fruit been sorted into commercial grades instead of into "clean" and "infested" fruit, the results as tabulated would have been much more favorable for the trees that were sprayed.

Moreover, the facts gleaned from the above table became important when we came to plan the work for 1908.

The results obtained upon plots 3, 4 and 13 indicate very clearly that so far as controlling peach fruit spot is concerned an application of lime-sulphur solution or of bordeaux mixture before the buds open is worthless. Reference to plots 5, 6, 11 and 12, shows that the second application likewise was of very little value; and since we may assume that the spray applied at this time would remain efficient for at least ten days, we are led to the conclusion that infestation of the fruit probably did not begin much before May 10. We may also reasonably conclude, from the fact that practically all of the spots upon the fruit which had been sprayed four times were very small, that the protective influence of the last spray did not extend quite to the end of the period of infestation, and this conclusion is supported by the fact that light showers, which would provide conditions favorable for infestation, occurred as late as June 22.

From the single season's work, then, we may conclude (1) that peach fruit spot can be controlled by spraying; (2) that so far as this disease is concerned, the first and second applications were worthless; (3) that practically all of the infestation of the fruit occurred between May 10 and June 15; (4) that during that period the fruit should be protected by some fungicide; (5) bordeaux mixture (3-6-50) was the only spray used upon

the trees in foliage. There is some danger of injuring the foliage with bordeaux but under the conditions which prevailed



FIGURE 2—THE SO-CALLED "CULLS" FROM SPRAYED TREES \* \* \* COULD HAVE BEEN MARKETING AS SECOND GRADE FRUIT



during our experiments, none whatever occurred.

November 1 and 2, 1907, the entire orchard was sprayed with the exception of one row through the center, which was left as a check. All of the trees south of this row were sprayed with "stock solution" lime-sulphur (specific gravity 1.255, Beaume 29.5) diluted 1 to 9; all north of the row were sprayed with 6-6-50 bordeaux. About one-half the leaves had fallen before the applications were made.

Notwithstanding the fact that the results of 1907 demonstrate that the first and second applications were valueless, it was thought best to test this conclu-

larger number of plats for testing a somewhat greater range of combinations, as shown in the following table. Stock solution lime-sulphur was also used upon some of the plats after the trees were in foliage.

In the table the various columns correspond with those of Table I., except that the one marked "fall" shows the spray which was applied November

TABLE II.—SHOWING RESULTS OF SPRAYING FOR PEACH  
FRUIT SPOT IN 1908

Plot	Fall	"A"	"B"	"C"	"D"	"E"
1.....	.....	.....	.....	.....	.....	83.8
2.....	.....	.....	.....	.....	.....	65.8
3.....	Bord.	.....	.....	.....	.....	46.6
4.....	Bord.	Bord.	Bord.	Bord.	.....	2.7
5.....	Bord.	Bord.	Bord.	Bord.	Bord.	3.6
6.....	Bord.	.....	.....	Bord.	.....	39.2
7.....	Bord.	.....	.....	Bord.	.....	30.3
8.....	Bord.	.....	.....	.....	Bord.	41
9.....	Bord.	Bord.	.....	.....	Bord.	21.5
10.....	Bord.	.....	Bord.	.....	.....	8.4
11.....	Bord.	Bord.	.....	Bord.	.....	25.6
12.....	Bord.	Bord.	.....	.....	.....	41.2
13.....	Bord.	.....	Bord.	Bord.	.....	4.1
14.....	Bord.	Bord.	.....	.....	Bord.	21.5
15.....	Bord.	.....	.....	.....	Bord.	41.4
16.....	.....	Bord.	.....	.....	Bord.	78.1
17.....	.....	.....	.....	Bord.	Bord.	76.3
18.....	.....	.....	Bord.	Bord.	.....	36
19.....	Bord.	.....	.....	L. S.	.....	30.2
20.....	Bord.	Bord.	.....	L. S.	.....	19.6
21.....	L. S.	.....	L. S.	L. S.	L. S.	15.8
22.....	L. S.	L. S.	Bord.	Bord.	.....	3.9
23.....	L. S.	L. S.	Bord.	Bord.	.....	17.1
24.....	L. S.	L. S.	Bord.	Bord.	Bord.	2.5
25.....	.....	L. S.	.....	Bord.	Bord.	50.9
26.....	L. S.	.....	L. S.	L. S.	.....	9.7
27.....	L. S.	L. S.	L. S.	L. S.	.....	8.8
28.....	.....	L. S.	L. S.	.....	.....	21.7
29.....	.....	L. S.	.....	Bord.	.....	50.8
30.....	L. S.	.....	L. S.	L. S.	.....	19.4
31.....	.....	.....	L. S.	L. S.	.....	34
32.....	.....	.....	.....	L. S.	.....	64.3
33.....	Bord.	Bord.	L. S.	L. S.	L. S.	10.7
34.....	Bord.	Bord.	.....	.....	L. S.	10.5
35.....	Bord.	.....	.....	L. S.	.....	25



SHOWING EFFECT OF FALL SPRAYING IN CONTROLLING  
PEACH TWIG BLIGHT

sion by another season's work, hence the plan of work for 1908 was essentially the same as for 1907, except that the entire orchard was sprayed and the various sprayings were so timed that the fourth occurred June 24, instead of on June 1. Provision was also made for a

1 and 2, 1907. The dates of the other applications were as follows:

"A" represents first spray, applied March 4 and 5, just as the buds were beginning to swell; "B" represents second spray, applied May 13; "C" represents third spray, applied June 4; "D"

represents fourth spray, applied June 24; "E" represents per cent of infested fruit at picking time.

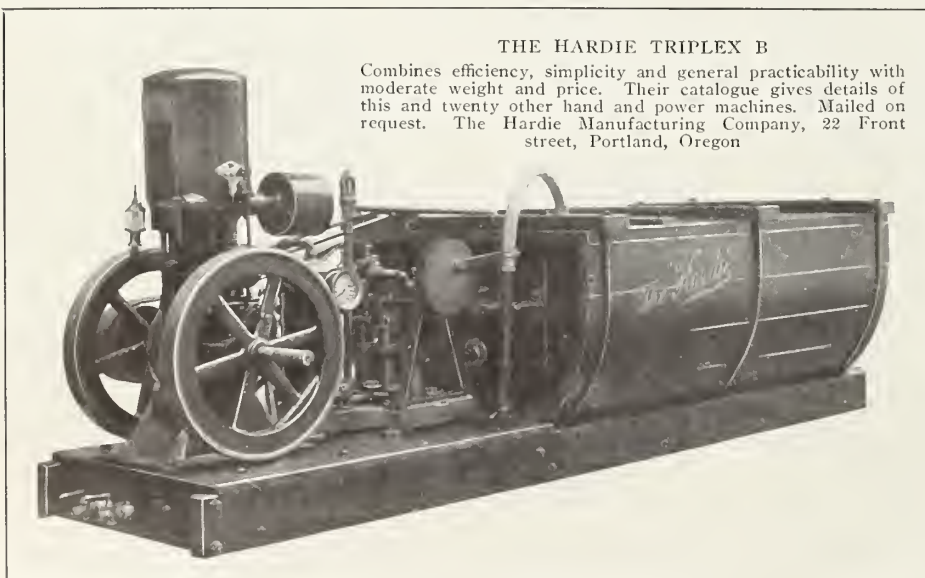
The stock solution lime-sulphur which was used in 1908, had a specific gravity of 1.25 (Beaume 29). For the first application it was diluted 1 to 10; for the second 1 to 18, and for the third and fourth 1 to 20. Bordeaux 5-6-50 was used for the first spraying and 3-6-50 for the second, third and fourth.

Bordeaux again caused no injury whatever to the foliage. The lime-sulphur, 1 to 18, which was used for the second application caused an almost perceptible amount of injury; but when the effect of the third application, 1 to 20, was added to this the injury became quite noticeable. For this reason only a comparatively few of the trees were sprayed for the fourth time with lime-sulphur, but on these no further injury could be detected.

In the main, the conclusions which were drawn from the results obtained in 1907, are sustained by those of 1908. Again does it appear that the first application, just as the buds are swelling, is of practically no value in controlling peach fruit spot. Again are we led, by the good results obtained from the sec-

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ond and third applications, which correspond very closely, in, dates, to the third and fourth applications in 1907, to the conclusion that the period of infestation by the fungus is confined to May 10 to June 15, and that this, therefore, is the critical period during which the growing fruit should be thoroughly protected by spraying. However, the inference that good results would follow an additional application in late June was not justified by the results. Moreover, at picking time much of the fruit which received the last spraying still bore more or less of the spray deposits, which were difficult to remove without injuring the delicate bloom.

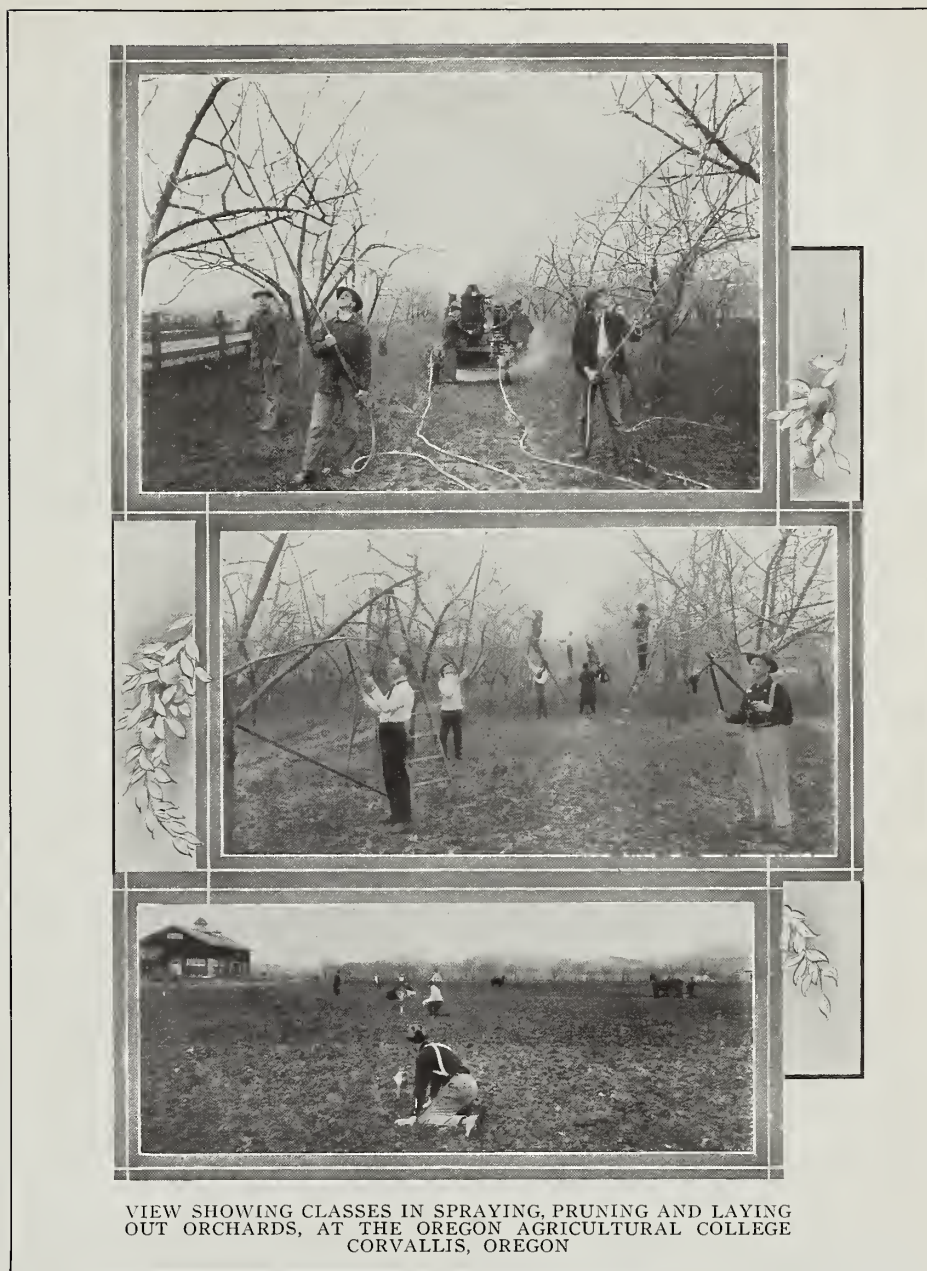
Perhaps the most important result of the season's work was to demonstrate the value of fall spraying for this disease. Every plat which received this application gives evidence of its value and every one of the plats which gave the best results, viz: 4, 5, 10, 13, 22, 24, 26, 27, 33 and 34, were fall sprayed either with bordeaux or lime-sulphur.

Little can be said as a result of the season's work as to the comparative value of bordeaux mixture and lime-sulphur solution for spraying peaches. The bordeaux seems to have given slightly better results, but the difference is so slight as to be easily within the range of error or normal variation.

It is usually considered a dangerous practice to use bordeaux mixture upon peach trees in foliage, but under the conditions which have prevailed at Ashland during the past two seasons no injury whatever has resulted from the use of the 3-6-50 formula. This does not argue that injury might not occur under less favorable conditions, and growers who plan to use bordeaux upon their peach trees are urged to exercise care in the preparation of the mixture and also, if possible, to avoid spraying in cold, rainy weather. The more vigorously the trees are growing the less susceptible will they be to the bordeaux injury.

We have conclusively demonstrated during the past three years that lime-sulphur gives better results than does bordeaux in preventing apple scab, and that by its use the danger of spray injury may be eliminated. It was hoped that similar results might follow its use upon the peach. Eventually such may be the case, but from the single season's work all that can safely be said is that in all probability stock solutions which test 30 degrees Beaume if diluted 1 to 30 or 35 would not injure foliage and would probably be efficient in checking the disease.

In this connection the attention of growers is called to the following statement by Mr. W. M. Scott, of the United States Department of Agriculture, that: "The self-boiled lime-sulphur mixture, however, when prepared as a mechanical mixture of lime and sulphur with only a small percentage of the sulphur in solution, is not injurious to peach foliage;



and in our experiments for two years past has proved to be a good fungicide."

#### Conclusions

1. Peach fruit spot probably causes a loss to the peach and apricot growers of Oregon greater than that caused by all other peach diseases.

2. The two seasons' work has demonstrated conclusively that the disease can be practically eliminated from an orchard by spraying.

3. Good results can be obtained by spraying either with bordeaux mixture or with lime-sulphur solution. The results so far are slightly in favor of the bordeaux mixture.

4. Some danger to foliage accompanies summer spraying with either bordeaux or lime-sulphur. Therefore, care should be exercised in preparing the spray and in not using it too strong.

5. The fall application seems to be more efficient than any other single one. It should be made as soon as possible after the late fruit is gathered. If San

Jose scale is present, lime-sulphur (1 to 10 or 12) should be used; if not, bordeaux may be used if preferred. This fall application is beneficial also in controlling the peach twig blight. (See illustration.) It is possible that one annual fall spraying may be all that is necessary to control the twig blight and the fruit spot.

6. Spraying just as the buds are swelling in spring is useless as a preventative of peach fruit spot. This is, however, the most important application for the control of peach leaf curl and should not be omitted if this disease has been prevalent.

7. Peach fruit spot attacks the fruit between about May 10 and June 15.

8. The first spring spraying, therefore, should be done about May 10; the second about June 1. If the disease has been unusually prevalent, or if rainy weather favorable to the growth of the fungus occurs, the second application may be made about May 20 to 25, and a third one about June 5 to 10.



# DISCOVERY AND QUALITY OF BORDEAUX MIXTURE

BY P. J. O'GARA, ASSISTANT PATHOLOGIST, U. S. DEPARTMENT OF AGRICULTURE

**B**ORDEAUX mixture, which has been the most widely used fungicide in this country and elsewhere, was introduced into the United States about twenty-two years ago by the United States Department of Agriculture. Although it was discovered in 1882 by Professor Millardet of the Faculty of Sciences, Bordeaux, France, it did not come into common use in France until 1887. However, during the intervening years, a large number of experiments were made by Professor Millardet and others, and in 1887 the horticultural and viticultural journals and the reports of societies published many articles on the general subject of spraying, particularly on the new spray which was called at first "The Copper Mixture of Gironde," and later the "Bouillie Bordelaise," and which seemed everywhere to have given the very best results. Although bordeaux mixture was discovered in 1882, the value of copper, or at least its compounds, as a fungicide had been discovered about seventy-five years previous to this date. In the year 1807 it was proved that copper sulphate results published at Montauban, in 1807. We find these interesting facts concerning the fungicidal action of copper sulphate would prevent the germination of spores of wheat smut. The experiments were carried out by Benedict Prevost, and the phate given as follows: "Thus the actual (copper) sulphate necessary to give to the water the power of preventing the smut from germinating at a low temperature does not exceed 1 to 400,000 of its weight, and 1 to 1,200,000 retards its germination." The above was published in *Comptes Rendus* 101 (1885), page 1225. These interesting experiments show the remarkable fungicidal power



STACY ORCHARD, BEAR VALLEY, UTAH

of copper sulphate, even in extremely dilute solution.

It may be interesting to the general reader to give Professor Millardet's account of the discovery of bordeaux mixture, which was published in the *Journal d'Agriculture Pratique*, October 8, 1885, pages 513-514:

"Since the appearance of (grape) mildew in France, 1878, I have not ceased to study the fungus in the hope of discovering a weak point in its development that would permit mastery of it. \* \* \* Three years ago I was searching for a substance which would answer the purpose that I had outlined when chance placed it in my hands. The last of October, 1882, I had occasion to pass through the vineyard of St. Julian in Medoc. I was not a little surprised to see that all along the route which I followed the vines still bore leaves, while everywhere else the leaves had long since fallen. There had been some mil-

dew this year, and my first impulse was to attribute the persistence of the leaves along the road to some treatment which had preserved them from the disease. Examination enabled me, indeed, to ascertain immediately that the leaves were in great part covered, on the upper surface, with a slight adherent coating of a bluish-white pulverulent substance.

"Arriving at the Chateau Beaucailon, I questioned the manager, Mr. Ernst David, who told me that it was the custom in Medoc at the turning of the grape to cover the leaves with verdigris or sulphate of copper mixed with lime, in order to keep away marauders; they, seeing the leaves covered with coppery spots, were not bold enough to taste the fruits hidden beneath for fear that they had been contaminated with the same matter. I called the attention of Mr. David to the fact of preservation of leaves, which question was discussed, and I made him share the hope, which this observation raised in me, of finding in the salts of copper the basis of the treatment for mildew. Mr. David at first, I ought to say, made several objections, but in the end he nevertheless entered completely into my ideas and assisted me in so efficient a manner that I owe to him the best part of the final success."

**First Formulas**—The origin of the use of the copper-lime mixture as a protection against marauders is not known; but it had been in use for some years before the discovery was made by Professor Millardet. The mixture, unlike that which we use today, was of the consistency of thin mush and was applied to the vines by sprinkling it on with a whisk broom. As a matter of interest, it may be stated that the first mixtures made for preventing mildew of the grape were based upon the original mixture, and could not be applied with a pump. Professor Millardet's first formula, which was published in 1885, and used that season in many vineyards with good success, contained five times as much copper sulphate and ten times as much lime as is now used in our standard 5-5-50 formula. Later the quantities of copper and lime were much reduced,



Engraved by Hicks-Chatten Co., Portland, Oregon

FULLERTON ORCHARDS, SPOKANE VALLEY, WASHINGTON. SECOND NATIONAL APPLE SHOW, SPOKANE, NOVEMBER 15 TO 20, 1909



so that some of the formulas published in 1887 approximate very closely to some that are now in general use. Although bordeaux received its first trials in France, it remained for the United States Department of Agriculture to extend its use. In France the workers contented themselves with the control of grape diseases and potato blight. As stated, the general application of bordeaux mixture to the prevention of fungus diseases of all fruits and field crops came about through the work of the United States Department of Agriculture, beginning with the year 1887, when circular No. 3, giving formulas, as reported in French journals, was sent out. In the years following, the attempt has been made to reduce the amount of the ingredients used to just such strength as will do the work.

**Materials For Bordeaux Mixture**—The first consideration in making bordeaux mixture is good materials. These should be bought from reliable concerns, and before being used, it would be well to have samples tested for purity.

**Copper Sulphate**—This chemical should be as nearly pure as it can be made. It is not unreasonable to demand at least 98 per cent pure. Copper sulphate usually contains a small percentage of sulphate of iron, and if the percentage of this salt is in excess of 3 or 4 per cent the copper sulphate should not be considered satisfactory.

**Lime**—In order to make good bordeaux, it is necessary to use good lime. All commercial limes contain impurities. In some, instead of being a calcium lime, it is very largely magnesium. If the percentage of calcium oxide is high, upon the addition of water it slakes quickly and completely, and readily mixes with the bluestone solution, making good bordeaux. Magnesium limes slake slowly and incompletely, and do not make a good solution. If there is any uncertainty regarding the purity of lime, an excess should always be used above that indicated in the formula. Air-slaked lime should never be used, since it has been shown that it will not make good bordeaux.

**Water**—The question has often been asked whether river, ditch or well water may be equally good in making bordeaux. Experiments along this line have shown that there is really little differ-



The gentleman standing is Mr. L. S. Mann, superintendent of the Stacy Orchard, Bear Valley, Utah. Occupying auto are W. E. Woods and C. A. Hickenlooper, of the Pioneer Fruit Company, California.

ence in any water commonly used. In large operations, where a considerable amount of water is necessary, that most available or convenient must be used. Water with a considerable amount of sediment in suspension may tend to precipitate the bordeaux, and in this case good agitation should be provided.

**Making Bordeaux Mixture**—The method of making bordeaux mixture has been so frequently discussed that it seems almost unnecessary to make mention of it here. Suffice it to say that formulas which have been found best adapted to the control of certain diseases and for certain localities should be adhered to. Very often men of little experience are inclined to place a higher value upon their own judgment than upon carefully determined formulas. It should be remembered that the addition of lime in solution to copper sulphate in solution does not make a mixture, but rather a chemical compound which is no longer lime and copper sulphate, but a new chemical compound which is very complex. The term "bordeaux mixture" is really a misnomer. When milk of lime is added to a solution of copper sulphate in certain definite proportions, the result is a definite chemical reaction and a resultant chemical compound, which, by long experience has been found to be the most desirable. There should be no guessing at weights and measures. It has been shown that there should be full dilution of the lime and

copper sulphate before mixing. In mixing the two ingredients, one solution should not be poured into the other; both solutions should be run simultaneously from the dilution tanks through a pipe or trough directly into the spray tank. Bordeaux made in this way requires less agitation to keep it in suspension. For a complete discussion on making bordeaux the reader will do well to send for Farmers' Bulletin No. 243, United States Department of Agriculture, Washington, District of Columbia. All farmers' bulletins are sent free to those who apply for them. Also apply to your agricultural experiment station for literature on this subject.

**Adhesiveness of Bordeaux**—Well made bordeaux is very adhesive, and for this reason it is of greater value as a dormant spray, especially on the Pacific Coast where rains are continuous during the winter months, than lime-sulphur. The fungous diseases, which are entirely preventable by the timely application of bordeaux before the fall rains begin, are anthracnose of the apple and peach blight, which also affects almonds, apricots and plums. It has been found that a single application of 5-5-50 bordeaux has proved entirely successful in preventing these diseases of the wood and buds, in the case of the stone fruits mentioned, and the subsequent fruit spot of the peach. While lime-sulphur has displaced bordeaux to a considerable extent as a summer spray, it has yet to be shown that it will give as uniformly good results as bordeaux when used as a dormant spray in localities subject to winter rains.

Adhesiveness depends very much upon how the mixture is made, and poor results with bordeaux should often be charged to carelessness or ignorance of the methods of mixing. Variations in the proportions of copper sulphate and lime beyond certain limits causes a decrease in adhesiveness. Insufficient lime, poor lime or air-slaked lime will not make a mixture of maximum adhesiveness. Too great an excess of lime, no matter how good the lime may be, will produce a mixture of poor adhesive quality. It has been found that the most adhesive mixture is produced when bordeaux is made in such a way that the amount of lime



ROW OF BEETS PLOWED UP BETWEEN THE TREES OF STACY ORCHARD BEAR VALLEY, UTAH



used is one-half that, by weight, of the copper sulphate. However, in practice, it is better to have the amount of lime equal, or nearly so, to the amount of copper, since this provides for any deficiency in the quality of the lime. While it has been found that an excess of lime may be of some advantage, this excess must be provided by subsequent applications and not by increasing the proportion in the original mixture. An excess of lime should never be used when a very adhesive mixture is desired, and all such formulas as 5-6-50, 6-7-50, etc., should not be used. This advice is given with the understanding that the bordeaux is to be used as a dormant spray. Since the self-boiled lime-sulphur is taking the place of bordeaux as a summer spray for various diseases where bordeaux was formerly used, it would seem that there will be no reason for using bordeaux made with a large excess of lime.

In spraying demonstrations made on the Pacific Coast by the United States Department of Agriculture during the past five years, the 5-5-50 formula for bordeaux has been largely adhered to. Except in instances where disease had gained a strong foothold, and it seemed that a stronger solution might be more effective, no other formula was employed. The first important spraying demonstration for the control of peach blight was made in California under the direction of Professor M. B. Waite of the United States Department of Agriculture in the fall of 1905. The formula used was much stronger than the one employed subsequently. Later, comparative tests were made of different formulas, resulting in the adoption generally of the 5-5-50 formula as a perfect preventative for peach blight. The lime-sulphur mixture, both the home made and the manufactured product, was also used, but well made bordeaux showed its superiority in most instances, and especially so where the trees were badly diseased. In the summer of 1906, following Professor Waite's demonstrations, commenting upon the use of bordeaux mixture as a preventative of diseases which we may class as winter diseases, such as peach blight and apple anthracnose, Mr. Grant Chadbourne, of Suisun, California, made the following

statement: "I think that after the first year this spray can be used a great deal weaker than we have commonly used it. In a peach orchard that had not produced a crop for three years, three-fourths of the crop was thinned off by hand, trees tied and propped, and still the trees are breaking from the overload of fruit; and this the result of only a single treatment in the fall." The results indicated by the above statement have been duplicated thousands of times in the various peach growing sections of California, so that peach blight as a menace to peach growing has been all but forgotten. In southern Oregon, in the vicinity of Ashland, good results have also been obtained by the same methods of treatment which were introduced somewhat later.

The following references to the two diseases mentioned above are given, so that readers who may wish to study them further may obtain them.

Apple Tree Anthracnose—Bulletin No. 60, by Professor A. B. Cordley, Oregon Experiment Station. (The above was republished in "Better Fruit" October, 1909.)

Peach Blight—Bulletin No. 20, division vegetable physiology and pathology, United States Department of Agriculture, 1900, by Professor Newton B. Pierce.

Bulletin State Horticultural Commission, California, 1906.

Yearbooks of United States Department of Agriculture, 1906 and 1907.

Bulletin 191, University Experimental Station, California, 1907.

Bulletin 106, Oregon Agricultural College, 1909.

## THE STACY ORCHARD

BY C. A. HICKENLOOPER

**T**HIS orchard is situated at Elwood, in the rich and fertile valley of Bear River, Box Elder County, Utah. It consists of 127 acres of apple trees, containing the following varieties: Jonathan, Winesap, Winter Bananas, Ganos, and Ben Davis. They were planted in the spring of 1905, and have made, as the cut will show, a very even, symmetrical growth. It has a gradual western slope. The surface soil is a rich, sandy loam, of about from three to three and a half



W. J. TENNY

One of Spokane's most successful advertising agents, who sells advertising space for "Better Fruit," because he believes it is a publication of merit and one through which his clients can sell irrigated lands. Mr. Tenny has been directing advertising campaigns for several large irrigation companies in Spokane and reports good results from the "ads" run in "Better Fruit"

feet. The subsoil is of a clay. There is a surface well on the farm with water about ten to twelve feet.

The three seasons since the planting, crops have been grown between the trees. The past season it was planted to sugar beets. They averaged about fifteen tons per acre to the amount of land occupied. There are four acres of grapes. The past season corn was planted between the rows of grapes, which made a magnificent growth, some stocks growing twelve feet high, which were exhibited at the state fair in Salt Lake City October 4 to 9, and received first prize. It is estimated that it would average seventy-five bushels of corn per acre for ground occupied. I understand that the company will grow no more crops between the trees from this on, but will devote their entire attention to their proper development. It is also the intention of the company to irrigate it as little as possible from now on until the trees become in full bearing, and thus compel them to root more deeply for moisture, and thus produce a better tree.

The writer had the pleasure of spending some hours in this beautiful orchard a short time since, and does not hesitate to say that in his opinion, this company has the ground work of a very profitable commercial orchard.

Too much praise can not be given to Superintendent L. S. Mann, and the apparent care that has been given to this orchard the past season.

This orchard is owned by the following: C. L. Stacy, of Minneapolis; J. M. Jensen, Salt Lake City; C. M. Holtzinger, Hamburg, Iowa; E. E. Marrill, Minneapolis; and Claud Jensen, Bear River City, Utah.



STACY ORCHARD, BEAR VALLEY, UTAH



## WASHINGTON STATE COLLEGE SPRAY CALENDAR

JANUARY, 1910

BY PROFESSOR A. L. MELANDER, ENTOMOLOGIST

WRITE FOR INFORMATION TO THE WASHINGTON AGRICULTURAL EXPERIMENT STATION, PULLMAN, WASHINGTON

Pest	Plant Attacked	What to Use	When to Use	Notes
1 Oyster Shell Bark Louse	Apple, mainly.....	Sulphur-lime .....	When leaves are off trees...	If this spraying is ineffectively done, apply kerosene emulsion or whale-oil soap when eggs hatch
2 San Jose Scale...	Nearly all deciduous trees	Sulphur-lime .....	In spring before buds burst.	
3 Red Spider.....	Fruit trees and bushes..	Sulphur-lime .....	In spring before buds burst.	This will kill the winter eggs. If the mite appears in summer, use kerosene emulsion, best adding one ounce of sulphur to the kerosene for each gallon of spray, or use sulphur-lime (1:½:10)
4 Blister Mite.....	Pear leaf .....	Sulphur-lime .....	In spring before buds burst.	
5 Green Aphis.....	Apple, pear, peach, plum, prune, etc.	Sulphur-lime .....	In spring before buds burst.	If the insects appear, spray with tobacco into the curling leaves
6 Bud Moth, Peach Worm or Twig Borer	All orchard trees.....	Sulphur-lime .....	As the buds are swelling....	Supplement with arsenate of lead when the buds open. Repeat in one week if necessary
7 Woolly Aphis.....	Apple .....	Sulphur-lime, kerosene emulsion or tobacco	Just before buds burst.....	Spray with force. Summer treatment, kerosene emulsion or tobacco
8 Black Aphis.....	Cherry .....	Tobacco .....	When insects appear.....	
9 Leaf Hopper.....	Apple .....	Tobacco .....	When insects appear.....	
10 Codling Moth....	Apple, pear.....	Arsenate of lead.....	While the last blossoms are falling	Use a bordeaux nozzle with a crook and spray with force from a raised platform directly into every flower. If so applied, one spraying is sufficient. If in doubt, keep some trees banded. If many worms are trapped, spray
11 Slug .....	Pear, cherry.....	Arsenate of lead.....	When insects appear.....	Or dust with lime, road dust or ashes
12 Tent Caterpillar..	All orchard trees.....	Arsenate of lead.....	When insects appear.....	Burn the tents
13 Climbing Cutworm	Orchard trees.....	Poison bait .....	Scatter when insects appear.	
14 Trunk Borer.....	Orchard and other trees.	.....	.....	Dig out the worms with a knife. During the growing season whitewash trunk with sulphur-lime containing extra lime
15 Grasshopper .....	Garden and orchard plants	Bordeaux .....	When insects appear.....	This is a repellent
16 Flea Beetle.....	Garden plants .....	Bordeaux .....	When insects appear.....	
17 Cutworm .....	Garden plants .....	Bordeaux .....	When insects appear.....	Scatter poison bait before planting
18 Root Maggot.....	Root crops .....	Carbolated lime and tobacco	Apply to soil before maggots appear	Thorough cultivation after crop is removed
19 Cabbage Worm...	Cabbage, cauliflower....	Poison bait .....	Dust the plants before the worms eat in	
20 Aphis .....	Garden and ornamental plants	Tobacco or kerosene emulsion	Just as soon as insects appear	Repeat if necessary
22 Moss and Lich ns	Fruit trees .....	Sulphur-lime .....	When leaves are off trees...	
23 Leaf Curl .....	Peach .....	Sulphur-lime .....	Just before the buds open...	
24 Mildew .....	Peach, apple, grape, rose, etc.	Sulphur-lime .....	Just before the buds open...	
25 Brown Rot or Fruit Mold	Plum, cherry, peach....	Bordeaux .....	Just before blossoms open...	
26 Scab .....	Apple, pear .....	Sulphur-lime, 1:½:5....	Just before blossoms open...	Again while last blossoms are falling. This treatment has given excellent results under ordinary conditions, but like bordeaux, especially on the west side, has been reported as causing scorching.
27 Fire Blight.....	Pear and apple.....	.....	.....	Prune out every sign of blight, cutting well below the disease. Dip the knife frequently in carbolic acid, or corrosive sublimate (1-1000)
28 Blackspot Canker.	Apple .....	Bordeaux double strength	Immediately after leaves fall	Again three weeks later
29 Fruit Spot.....	Apple .....	Bordeaux .....	Middle to last of June.....	This treatment has been successful in the East for what some growers call Baldwin Spot
30 Scab .....	Potato .....	Formalin, 1 pound to 30 gallons water	.....	Soak seed for two hours, then cut and plant. Don't plant in soil where scabby potatoes were grown
31 Potato Blight....	Potato .....	Bordeaux .....	July 1 to 15	Again two weeks later. If blight is bad on unsprayed potatoes near by, follow with a third application two or three weeks later
32 Western Tomato Blight	Tomato .....	.....	.....	Spraying will do no good. Set out strong plants, close together, or plant the seed thick in the rows. Give the best of care, shade, and give plenty of water. You will probably lessen the blight
33 Anthracnose .....	Bean .....	Bordeaux .....	When plants are all started.	Again three weeks later. Follow with a third spraying three weeks later. Reject all diseased seed
34 Smut .....	Wheat and oats.....	Formalin, 1 pound to 45 gallons water	.....	Spray the seed thoroughly; let it lie in a pile two hours; dry, and plant with a clean seeder

## Kerosene Emulsion

Kerosene ..... 2 gallons  
Whale oil soap.....½ pound  
Water .....

Dissolve the soap in the water by boiling, and add the kerosene to the water by boiling, and add the suds boiling hot to the kerosene, away from the fire. The mixture is then to be agitated violently, preferably by pumping it back on itself with a force pump. After four or five minutes the mixture suddenly becomes creamy in consistence. If well made, the cream will stand for a long time without free oil rising to the surface. Unless otherwise stated, use one gallon of the emulsion to twelve gallons of water in spraying. One quart of soft soap or one pound of laundry soap may be used instead of the whale oil soap.

## Arsenate of Lead

Arsenate of lead..... 1 pound  
Water .....

It is unnecessary to use it stronger. It is more reliable than paris green. It is especially useful where there is much rain. It sticks well and does not scorch. Mix well first with a small amount of water.

## Sulphur-Lime

Sulphur ..... 1 pound  
Good lime .....½ to 1 pound  
Water .....

First slake the lime in the cooking vat. When slaked add the sulphur and about one-fifth of the water, so that the mixture will boil easily. Keep it well stirred. Boil until the sulphur is completely dissolved, which should take less than an hour. Then add the rest of the water, and the mixture is ready to spray. Use only the clear liquid. It should be poured into the spraying tank through a strainer. It may be used hot or cold. There are several ready-made sulphur-lime washes which give good results when properly diluted. When mixed 1 part to 14 parts of water they usually correspond in strength to the formula given above.

## Tobacco

Tobacco leaves ..... 1 pound  
Water .....

Simmer for one hour and strain. Two pounds of tobacco dust or ground tobacco may be substituted for the leaves. Black Leaf extract may be used, 1 part to 65 of water.

## Bordeaux

Bluestone ..... 6 pounds  
Good lime ..... 4 pounds  
Water .....

Dissolve the bluestone by suspending it in a sack in twenty-five gallons of water in a barrel. Slake the lime in another vessel, adding a little water slowly, and dilute to twenty-five gallons. Mix the two thoroughly. Even the best bordeaux may scorch in rainy weather. For double strength bordeaux use twice as much bluestone and lime.

## Poison Bait

Paris green ..... 1 part  
Bran .....

Mix well. For cutworms make a mash by adding water. Season with a little salt.

## Carbolated Lime

Milk of lime.....10 gallons  
Crude carbolic acid..... 1 ounce



# OUR UNPARALLELED CLUBBING OFFERS

"Better Fruit" offers to readers what it considers the finest list of clubbing offers ever placed before the public in the Northwest. Its variety is one that must appeal to readers of all classes. Look it over carefully, select the one you want and send us the proper amount and we will do the rest.

Review of Reviews.....\$3.00	Review of Reviews.....\$3.00	Sunset .....\$1.50
Woman's Home Companion..... 1.50	Scribner's ..... 3.00	Pacific Monthly ..... 1.50
McClure's ..... 1.50	Good Housekeeping ..... 1.25	Better Fruit ..... 1.00
Better Fruit ..... 1.00	Better Fruit ..... 1.00	Total .....\$4.00
Total .....\$7.00	Total .....\$8.25	All for ..... 2.75
All for ..... 4.50	All for ..... 6.50	
Woman's Home Companion.....\$1.50	Everybody's .....\$1.50	Everybody's .....\$1.50
McClure's ..... 1.50	American Magazine ..... 1.50	St. Nicholas (new)..... 2.50
Better Fruit ..... 1.00	Delineator ..... 1.00	Delineator ..... 1.00
Total .....\$4.00	Better Fruit ..... 1.00	Better Fruit ..... 1.00
All for ..... 3.00	Total .....\$5.00	Total .....\$6.00
	All for ..... 3.75	All for ..... 4.55
Success .....\$1.00	Housekeeper .....\$ .75	Pacific Monthly .....\$1.50
American Magazine ..... 1.50	Review of Reviews..... 3.00	Semi-Weekly Oregon Journal... 1.00
Better Fruit ..... 1.00	McClure's ..... 1.50	Better Fruit ..... 1.00
Total .....\$3.50	Better Fruit ..... 1.00	Total .....\$3.50
All for ..... 2.50	Total .....\$6.25	All for ..... 1.50
	All for ..... 4.00	
Delineator .....\$1.00	Country Life in America.....\$4.00	Breeder's Gazette .....\$2.00
Success ..... 1.00	Review of Reviews..... 3.00	Better Fruit ..... 1.00
Everybody's ..... 1.50	McClure's ..... 1.50	Total .....\$3.00
Better Fruit ..... 1.00	Better Fruit ..... 1.00	Both for ..... 2.00
Total .....\$4.50	Total .....\$9.50	
All for ..... 3.75	All for ..... 6.55	
Good Housekeeping .....\$1.00	Country Life in America.....\$4.00	Northwest Poultry Journal.....\$ .50
Success ..... 1.00	Outing ..... 3.00	Better Fruit ..... 1.00
American ..... 1.00	Better Fruit ..... 1.00	Total .....\$1.50
Cosmopolitan ..... 1.00	Total .....\$8.00	Both for ..... 1.00
Better Fruit ..... 1.00	All for ..... 5.50	
Total .....\$5.00		
All for ..... 3.70		
Century .....\$4.00	Pacific Monthly .....\$1.50	World's Work .....\$3.00
Everybody's ..... 1.50	Better Fruit ..... 1.00	Everybody's ..... 1.50
World's Work ..... 3.00	Total .....\$2.50	Delineator ..... 1.00
Better Fruit ..... 1.00	Both for ..... 2.00	Better Fruit ..... 1.00
Total .....\$9.50		Total .....\$6.50
All for ..... 7.50		All for ..... 5.75
Country Life in America.....\$4.00	Weekly Oregonian .....\$1.50	World's Work .....\$3.00
World's Work ..... 3.00	Better Fruit ..... 1.00	Everybody's ..... 1.50
Everybody's ..... 1.50	Total .....\$2.50	Better Fruit ..... 1.00
Delineator ..... 1.00	Both for ..... 1.75	Total .....\$5.50
Better Fruit ..... 1.00		All for ..... 4.75
Total .....\$9.50	Woman's Home Companion.....\$1.50	World's Work .....\$3.00
All for ..... 7.00	Better Fruit ..... 1.00	Delineator ..... 1.00
	Total .....\$2.50	Better Fruit ..... 1.00
	Both for ..... 1.90	Total .....\$5.00
Review of Reviews.....\$3.00	Sunset .....\$1.50	All for ..... 4.25
McClure's ..... 1.50	Better Fruit ..... 1.00	Garden Magazine .....\$1.00
Scribner's ..... 3.00	Total .....\$2.50	Better Fruit ..... 1.00
Better Fruit ..... 1.00	Both for ..... 2.00	Total .....\$2.00
Total .....\$8.50		Both for ..... 1.40
All for ..... 6.25		

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The following offers contain only selected magazines of the highest merit. The needs and desires of every one will be found represented in this list—Women, Literature, Reviews, Juvenile, Outdoor Interests, Fiction, Technical, Music, Art, Humor, Religious, etc.

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**GREATEST SUBSCRIPTION OFFER—**Through a most unusual arrangement with the publishers we are able to make this remarkable offer to our subscribers.

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Garden Magazine	2.00	" 1.70	Outing Magazine	4.00	" 3.25	Van Norden Magazine	2.50	" 1.70
Good Housekeeping	2.00	" 1.70	Outlook	4.00	" 3.75	Vogue	5.00	" 4.50
Good Literature	1.35	" 1.25	Pacific Monthly	2.50	" 1.75	Wide World Magazine	2.25	" 2.15
Hampton's Magazine	2.50	" 2.00	Paris Modes and Pattern	1.50	" 1.35	Woman's Home Companion	2.50	" 1.90
Harper's Bazar	2.00	" 1.70	Pearson's Magazine	2.50	" 1.70	Woman's National Daily	2.00	" 1.65
Harper's Magazine	5.00	" 4.50	People's Home Journal	1.35	" 1.25	World To-Day	2.50	" 2.00
Harper's Weekly	5.00	" 4.50	Philistine	2.00	" 1.65	World's Work	4.00	" 3.25

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**BETTER FRUIT, Hood River, Oregon**



# BETTER FRUIT

HOOD RIVER, OREGON

OFFICIAL ORGAN OF  
THE NORTHWEST FRUIT GROWERS' ASSOCIATION  
A MONTHLY ILLUSTRATED MAGAZINE  
PUBLISHED IN THE INTEREST OF MODERN  
FRUIT GROWING AND MARKETING

ALL COMMUNICATIONS SHOULD BE ADDRESSED AND  
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Better Fruit Publishing Company

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EDITOR AND PUBLISHER ASSISTANT EDITOR

H. E. VAN DEMAN  
CONTRIBUTING EDITOR

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ADVERTISING RATES ON APPLICATION

Entered as second-class matter December 27, 1906,  
at the Post Office at Hood River, Oregon,  
under Act of Congress of March 3, 1879

**A GOOD WORD FOR OUR CONTEMPORARIES.**—In the January edition of "Better Fruit" we published an editorial on the above subject in which we endeavored to convey the idea that we were broad-minded and liberal enough to be willing to assist any horticultural papers in the Northwest territory. We felt that we could in any reasonable way. This article was written by the editor while ill, which we trust will be sufficient explanation for the omission of some excellent journals, among which may be mentioned "The Desert Farmer," edited by Lewis A. Merrill. We feel very sorry over this omission, for the reason that the editor is a broad-minded man, doing a great work, and very popular with all fruit growers in the State of Utah. Any one desiring information can get posted about the possibilities in the State of Utah in farming or horticultural pursuits and will do well to subscribe for this excellent paper. Our field is broad and our circulation increasing. Also in the



Engraved by Hicks-Chatten Co., Portland, Oregon

WILD ROSE ORCHARD DISPLAY AT SECOND NATIONAL APPLE SHOW, SPOKANE, 1909

State of Colorado we might add that there are two papers published which we likewise omitted to mention, both giving information about horticulture and various agricultural pursuits, which will be valuable to any one seeking information in such lines in Colorado. They are the Colorado Fruit Grower, published at Grand Junction, and the Ranch and Range, published at Delta, Colorado.

◆ ◆ ◆

**THE YELLOW NEWTOWN PIPPIN** on the cover of this number of "Better Fruit" is reproduced almost perfectly in form and color, true to life, from specimens grown at Hood River. The photograph was taken by Mr. Weis-

ter, the official photographer of the Harriman System, and the color plates made by the publicity department of the Oregon Railroad & Navigation Company. This apple originated on Long Island Sound, New York State, and is grown in only a few localities in America, and in fact the apple is only a commercial success in few districts of limited areas. It is grown on a narrow strip along the Hudson River in New York State; in Virginia, where it is known as the Albermyrle Pippin; in Pajaro Valley, California; in Southern Oregon, and to some extent in the Yakima and Willamette Valleys. In Hood River Valley it is one of the leading apples, and probably from one-half to two-thirds of the area in fruit in this valley is set with this variety. It is one of the longest keepers, shipments being made abroad out of cold storage last year in perfect condition as late as September 1. The apple is very popular in America and in addition is considered as one of the greatest export apples grown, being a prime favorite with Englishmen and in great demand. The entire crop of fancy four-tier Newtowns of the Hood River Apple Growers' Union was sold in advance in 1909 at \$2.40 net, f.o.b. Hood River.

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**ARE YOU A FRUIT GROWER,** or do you expect to become one? We have no definite plan. We do not know just what we are going to get out in the way of special editions very far in advance. If we did, as much as we would like to tell you through our columns, we would not do so, because some other publication would muss the job by trying to do it first—but of one thing we are certain, that "Better Fruit" for the coming year will have the best series of editions that we have ever produced, with more valuable information than has appeared in our previous excel-



Engraved by Hicks-Chatten Co., Portland, Oregon

EXHIBIT BY H. S. SIMMONS, WENATCHEE, WASHINGTON, AT SECOND NATIONAL APPLE SHOW, SPOKANE, WASHINGTON, 1909



# A Wonderful Business Story

We have told in a book—which we ask you to send for—one of the greatest business stories ever told. A story of how John N. Willys stepped in two years to the topmost place in motordom. Of how OVERLAND automobiles rose in twenty-four months to this year's sales of \$24,000,000. How a factory has grown like magic to a pay roll of 4,000 men—to a daily output of thirty carloads of automobiles. And how a large part of the demand of the country has been centered around one remarkable car.

## The Discovery

Here is an outline of the story—just enough to make you want it all.

Two years ago, Mr. John N. Willys was a dealer in automobiles. There came to him one day a remarkable car—evidently the creation of a mechanical genius. The simplest, sturdiest, smoothest-running car that any one around there had seen.

The name of the car was the Overland. And the price—then \$1,250—was as amazing as the car itself.

The sale of this car spread like wild-fire. Each car sold brought a call for twenty others like it. Old and new motor car owners came by the score to deposit advance money—attracted by the Overland's matchless simplicity.

But the cars did not come. And when Mr. Willys went to the makers he found them on the verge of receivership.

The genius which had created this marvelous car could not finance the making in the face of the 1907 panic.

## The New Start

Mr. Willys in some way met the overdue pay roll—took over the plant—and contrived to fill his customers' orders.

Then the cry came for more cars from every place where an Overland had been sold. As the new cars went out the demand became overwhelming. The factory capacity was outgrown in short order. Then tents were erected.

Another factory was acquired, then another; but the demand soon outgrew all three.

During the next fiscal year these factories sent out 4,075 Overland cars. Yet the demand was not half supplied.

Dealers fairly fought for preference. Buyers paid premiums. None could be content with a lesser car when he once saw the Overland.

All this without advertising. About the only advertising the car ever had was what users told others.

## The Pope-Toledo Plant

Mr. Willys' next step was to buy the Pope-Toledo factory—one of the greatest automobile plants in the country. This gave him four well-equipped factories—just sixteen months from his start.

But the Toledo plant wasn't sufficient. So he gave his builders just forty days to complete an addition larger than the original factory.

Then he equipped these buildings with the most modern machinery—with every conceivable help and convenience—so that cars could be built here for less than anywhere else.

Now 4,000 men work on Overland cars. The output is valued at \$140,000 per day. The contracts from dealers for this season's delivery call for 20,000 cars.

Now this man has acquired twenty-three acres around his Toledo plant. And his purpose is to see—from this time on—that those who want Overlands get them.

## Marvelous Sales

Dealers had ordered 16,000 of the 1910 Overland models before the first car was delivered. That means that each Overland sold the previous year had sold four others like it.

And without any advertising.

This year's Overland sales will exceed \$24,000,000. Yet the Overland is but two years old.

## The \$1,000 Overland

This year an Overland—better than last year's \$1,250 car—is being sold for \$1,000. This is because the tremendous production has cut the cost 20 per cent.

A 25-horsepower car, capable of fifty miles an hour, for \$1,000, complete with lamps and magneto. Never did a maker give nearly so much for the money.

There are higher-powered Overlands for \$1,250, \$1,400, \$1,500. They are just as cheap in comparison as the \$1,000 model.

The Overlands are unique in simplicity. They operate by pedal control. A ten-year-old child can master the car in a moment.

They are made in the same factory, and by the same man as made the Pope-Toledo—a \$4,250 car. The reason for the price lies in the production of 125 cars per day.

## Get the Whole Story

Send me this coupon to get the whole story, told in a fascinating book. Learn about the car which in two years captured so large a part of the whole trade of the country. See what has done this—what there is in the Overland to make it the most desired car in existence. Please cut out this coupon now.

F. A. Barker, Sales Manager  
The Willys-Overland Company  
TOLEDO, OHIO

Please send me the book.

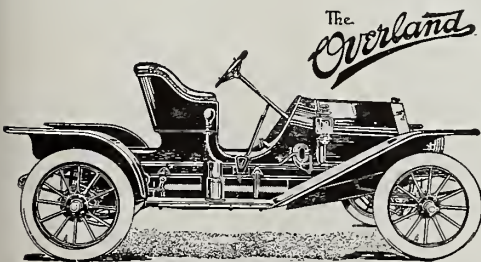
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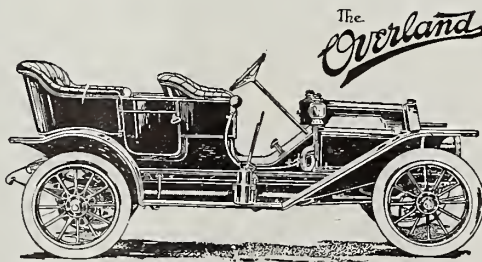
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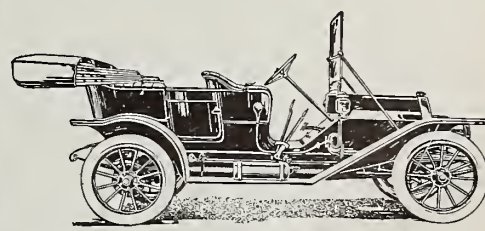
OVERLAND MODEL 38—PRICE \$1,000

25-H.P. 102-inch wheel base. Made also with single rumble seat, double rumble seat and tonneau at slightly additional cost



OVERLAND MODEL 41—PRICE \$1,400

40-H.P. 112-inch wheel base. Five passengers



OVERLAND MODEL 42—PRICE \$1,500

Either touring car or close-coupled body top  
Glass front and gas tank are extras

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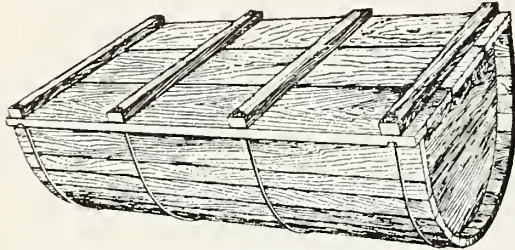
lent issues. There will be some special editions which will please you.



**SOME THINGS WE KNOW.**—We know that "Better Fruit" is the best fruit growers' paper published in the wide, wide world. We know that there is more valuable information in an issue of "Better Fruit" than is contained in

your large sized editions every month during the past year and we know that we have averaged sixty-four pages each month in 1909, and we know that few other horticultural papers average more than twenty or thirty pages. We know that we started out to give you a twenty-

four-page edition for one dollar. We know now that we published sixty-four pages on an average in 1909 and we know that the last editions have contained consecutively for the past three months eighty-four pages. In other words, we are giving you three and one-



Wooden tanks are largely used mounted upon a platform for carrying the spray mixture. They are made of various sizes, ranging from 100 to 300 gallons. The top is made heavy enough to serve as a platform for the operator when desired. The wood used is usually fir or cypress.

any edition of any other horticultural paper in America. We know that there are not more than half a dozen papers published in the United States which use as good a quality of paper as "Better Fruit." We know that "Better Fruit" is more handsomely illustrated and contains more cuts than any other publication of its kind in America. We know that the cover pages of "Better Fruit" in colors are not equaled by any other horticultural journal in the United States. We know that "Better Fruit" has given

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S L Allen & Co Box 1106 U Philadelphia Pa

# You Can Buy Five or Ten Acres of Burbank Land on Easy Terms

If you wish to locate at once you will have an income available the first year from garden truck and small fruits. The second year ten acres will support an ordinary family comfortably, and with the third year the profitable period begins.

We offer five and ten-acre tracts at from \$150 to \$250 per acre. Cost of clearing and planting is from \$40 to \$75 per acre. Or we will clear, plant and care for your orchard while you are paying for it, and turn it over to you in full bearing condition.

You can have four years in which to pay for your tract. With industry you can make the land pay for itself in that time. We will accept monthly, semi-annual or annual payments. Fruit growers nearby net from \$500 to \$1,000 an acre. You can do as well.

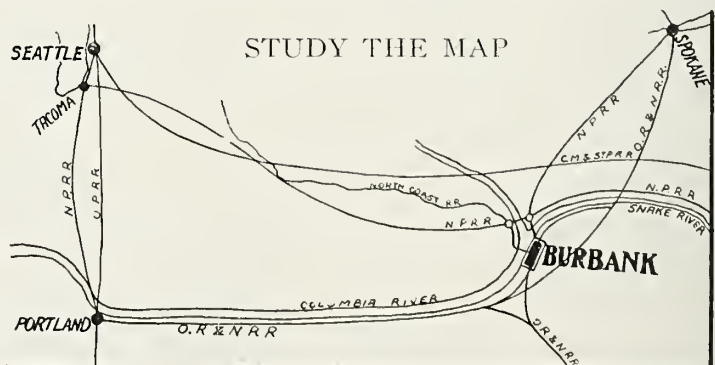
Burbank is in the heart of the early fruit belt. Climate and surroundings are ideal. You should certainly investigate before locating elsewhere.

BOOKLET "3" FREE. SEND FOR IT PROMPTLY. THE NUMBER OF TRACTS IN THIS OFFER IS LIMITED

## BURBANK LAND COMPANY

BURBANK, WASHINGTON

Agencies: Seattle, Spokane, Portland



Burbank's transportation facilities equal those of any irrigated district in the Northwest. Two railroads go right through our property. The finest markets in the West are only one night away. Think what this means—top prices for garden truck and small fruits always, and an income available the very first year from any of our tracts.



half times as much reading matter for the original price of one dollar per year. We know that we ought to get more. Nearly every other publication the size of "Better Fruit" is getting \$1.50 per year, consequently you are getting very good value when you get "Better Fruit" at its present price. "Better Fruit" has a circulation of over 10,000 copies per month. We want to make it 20,000. We know you like "Better Fruit." We know it is valuable to you in your business. We know that we are giving great value. Now we want every subscriber to show his appreciation by getting at least one additional subscriber for us, so that we

Chas. G. Pratt, *President*  
J. H. Osborne, *Vice-Pres.*  
R. W. Pratt, *Cashier*

M. M. Hill  
Wilson Fike  
C. H. Stranahan

## Hood River Banking & Trust Company

Hood River, Oregon

We own and occupy the finest equipped and most modern bank in Hood River County. A general banking and trust business transacted. Safe deposit boxes. Interest paid on time and savings deposits. Make our bank your headquarters when in Hood River. Correspondence and your patronage solicited

Send us your

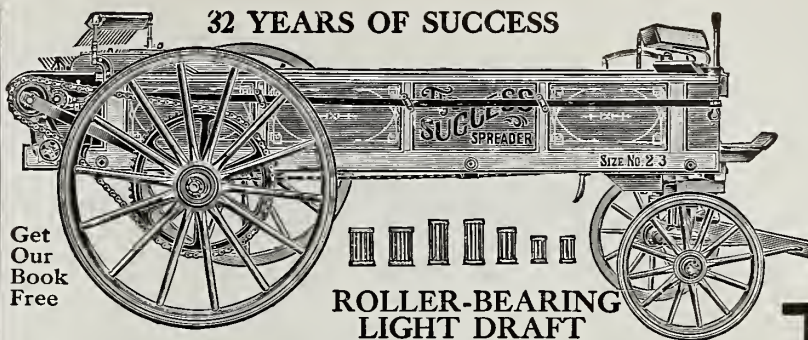
White Salmon Valley Business

## White Salmon Valley Bank

Under state examination

White Salmon, Washington

## 32 YEARS OF SUCCESS



Get  
Our  
Book  
Free

ROLLER-BEARING  
LIGHT DRAFT

## SUCCESS SPREADER

The only spreader with a 32-year record of good work. Simplicity, Durability and Light Draft always foremost. Direct Chain Drive. No Cog Gears. The choice of men who investigate thoroughly. Wood or metal wheels. A generation of experience back of every Success. The leader from the first. Exclusive features all patented. Catalog of facts Free. Write us promptly.

**Kemp & Burpee Mfg. Co.** SYRACUSE  
N. Y.



Horsepower Spramotor, high pressure 100 to 200 pounds, for one or two horses. Over 500 in use. Automatic regulator (no safety valve) nozzle protector; 12-gallon air tank, largest capacity. Can be hand operated. Nozzle controlled automatically, as to height, width and direction.

Also for orchard, melons, potatoes, etc. The largest line of spraying machines in the world. Guaranteed against all defects for one year. Particulars free—NOW.

This ad. will not appear again in this paper.

**R. H. HEARD**

1334 Erie Street

Buffalo

## Seeds That Grow!

If you want the Best it is possible to grow—such as you can rely upon to produce the Choicest Vegetables and Most Beautiful Flowers, you should try BURPEE'S SEEDS! We shall be pleased to mail you, upon application, **Burpee's New Annual for 1910**,—long known as "The Leading American Seed Catalog." The first edition is more than four hundred thousand copies, and yet it is too expensive a book of 178 pages to mail unsolicited except to our regular customers. With elegant colored plates and hundreds of illustrations from nature it tells plain truth and is a Safe Guide to success in the garden. Do you want a copy? If so, send your address to-day to

**W. ATLEE BURPEE & CO.**  
Philadelphia, Pa.

APPLES

PLUMS

PEARS

PEACHES

PRUNES



A Promise of Good Returns

## The LAND OF OPPORTUNITY

LOCATED across the Columbia River from Hood River, Oregon, the White Salmon Valley offers the greatest opportunities of any land on earth to fruit growers. Where apples, cherries, pears, peaches, prunes and strawberries grow to perfection. A few dollars invested in fruit land today will return to you in a very few years sixty-fold. The soil, climate, water and scenery are unsurpassed by that of any country. Build a home where you can enjoy peace and plenty the remainder of your life.

We have some bargains in orchard and general farm lands in and near White Salmon, also large and small bodies of timber land, cheap.

WRITE US FOR DESCRIPTIVE MATTER AND PRICES

**Estes Realty & Investment Co.**

WHITE SALMON, WASHINGTON

BERRIES

CHERRIES

STRAWBERRIES

NUTS



can make it 20,000. Our circulation isn't as large as some other fruit papers claim for theirs, but "Better Fruit" is more influential, wherever it is known, than any other horticultural paper published in America. The editor and publisher of "Better Fruit" did not conceive it as a money-making proposition nor has he endeavored to see how much money he could make out of a single issue, but on the other hand has endeavored to make every issue just as good as it could be made, from every point of view. Including the amount of money put in and the amount earned, which has been put back, means that it has cost about \$75,000 to establish "Better Fruit." It is a matter of business that "Better Fruit" should be general in every respect, devoted to the fruit industry of the Northwest, because no single state nor any two

states combined could support such a publication. "Better Fruit" must have the support of every district and every state in the Northwest. If you want one good general paper like "Better Fruit" all we ask is your support, morally and financially. Give us your subscription; we will give you value received. Give us your advertising and we will give you results that will increase your business and pay you splendid profits.

## LILLY'S CATALOGUE FOR 1910

We have just received a copy of Lilly's 1910 Catalogue. The Chas. H. Lilly Company inform us that they are very proud of this issue, for many reasons, one of them being that it was printed by themselves on their own printing plant. They have always maintained a small job plant, which they claim was necessary for quick label, booklet and pamphlet work. Owing to the growth of their business they decided last fall to add a cylinder press and several other up-to-date printing machines, and further to print their 132-page catalogue for 1910, which was completely exact on time, namely, December 31, 1909. As usual, we find their new catalogue very instructive and complete.

## Land Plaster, the Great Soil Stimulator

Strengthens and invigorates all soils. You cannot afford to be without it.

**OREGON LIME & PLASTER COMPANY**

Mill: Lime, Baker County, Oregon Office: Worcester Building, Portland, Oregon

## Colonial Strain Rhode Island Reds

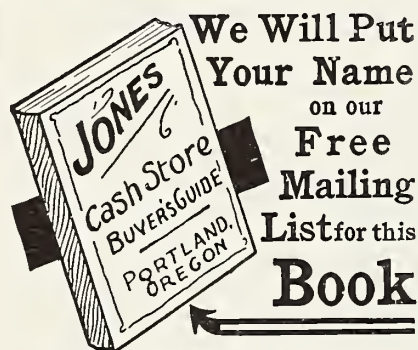
### SINGLE COMB

*The birds that lay all winter  
The birds without superiors for the table  
The birds that are beautiful to look upon*

My pens are made up of carefully selected pullets that have been laying all winter, of fine color and vigor. They are mated with richly colored, strong cockerels from the State of Rhode Island, the original home of the Reds. These cockerels are from trap-nested heavy-laying stock. My birds are kept under the Philo system. Orders now booked for March, April, May and June eggs. Settings of 15. \$3.00. February eggs all engaged. Young stock for sale in season.

WM. B. DYER, Breeder

"Canyon Crest" Ranch, Hood River, Oregon



## And for Copies of Our Monthly Specials

You Can Actually

**Save 25% to 50%**

On Everything You Buy, if You Will Only Avail Yourself of Our **DIRECT TO CONSUMER PRICES**

The Buyer's Guide is chock full of cut prices on everything you use or need and is plainly illustrated. **THE MONTHLY SPECIALS LIST** contains certain household necessities priced (for the month only), away down so low you can afford to lay in an extra supply if you wish

### THIS MONTH'S SPECIALS

Cane Sugar .....	Per 100 lbs.	\$5.55
White House Fl ur..	Per bbl.	6.15
Portland Brand Flour...	Bbl.	5.70
Sugar Peas .....	Per doz.	1.00
Sugar Corn .....	Per doz.	1.05
Canned Salmon .....	Per doz.	1.00
Sliced Pineapple .....	Per doz.	1.50
Alaska Codfish .....	Per lb.	.06

Begin to save now—write today for the Catalog—it's Free

**THERE IS ONLY ONE JonesCashStore**

Dept. 55 Front & Oak, PORTLAND, ORE.

## CUSHMAN SPRAYING MACHINE

HIGH { QUALITY PRESSURE

BUILT IN THREE SIZES



CAPACITIES  
5, 10 AND 13  
GALLONS  
PER MINUTE

As the orchardist takes pride in placing on the market the highest quality fruit, so we take pride in producing the highest quality sprayer.

Our ambition from the start has been, not simply to make a fairly good machine and sell lots of 'em; not one just a little better than some of them, but to build the best of them all.

Our first experimental machine (built in 1902 and still doing good service at 200 pounds pressure) says we started right. We've improved every year, and "THE CUSHMAN QUALITY SPRAYING MACHINE" is so far in the lead today that the others are tumbling over each other with imitating features. Note how some adopted our agitator system and bronze ball valves on their 1910 machines for the first time. They think these features will help the efficiency of their outfits, and they will; we've tried them for years. But we have many other features which will continue to be exclusive, for they are protected by patents. When you buy see that you get quality—the kind that will stay with you for years to come.

At the recent National Horticultural Congress held at Council Bluffs, Iowa, more awards were given on apples which had been sprayed with the Cushman machines than on all others combined.

**Cushman Power Sprayer Company**

LINCOLN, NEBRASKA



J. M. Schmeltzer, Secretary

**Hood River Abstract Company**

Hood River, Oregon

ABSTRACTS INSURANCE  
CONVEYANCING**T. O'MALLEY CO.**

COMMISSION MERCHANTS

Wholesale Fruits and Produce

We make a specialty  
in Fancy Apples, Pears and  
Strawberries

130 Front Street, Portland, Oregon

**True-to-Name Nursery  
OFFERS TO PLANTERS**

Desiring strictly first-class one-year-old trees grown on No. 1 whole roots, a few thousand apple, pear and cherry of the leading varieties adapted to the Pacific Northwest. We make a specialty of growing Yellow Newtown and Spitzenberg and personally select all buds and scions from bearing and tested trees. Order now for fall 1909; get trees guaranteed "true to name," and avoid future disappointment. Address

**H. S. GALLIGAN**

Hood River, Oregon

Phone Home 2002K Catalogue on Application



The Codling Moth, greatly enlarged.

**Save Your Fruit From Damage**

The widespread increase of the codling moth and other insects injurious to fruit trees causes an annual loss to growers throughout the country of several million dollars.

The surest way for you to prevent your fruit from being wormy or badly damaged is to carry out a regular plan of spraying with some reliable material.

**SHERWIN-WILLIAMS****NEW PROCESS ARSENATE OF LEAD**

is so prepared that it is in the very finest state of sub-division. It will not burn the foliage, but is extremely effective in killing such insects as the codling moth, curculio, etc. In spraying for these two insect pests we recommend a dilution of from 4 to 6 lbs. to 100 gallons of water.

Write for our Arsenate of Lead booklet.

**THE SHERWIN-WILLIAMS CO.**MANUFACTURERS OF THE HIGHEST GRADE  
INSECTICIDES AND FUNGICIDES

707 CANAL ROAD, N. W.

CLEVELAND, OHIO

776

**TREES**Pears  
Apples  
Grape Vines  
Roses**WALNUTS**

Franquette, Mayette and all leading French types in grafted trees. Also best English sorts, either seedlings or grafted trees. We solicit your orders, for our stock and prices are right.

**CALIFORNIA HORTICULTURE**

By George C. Roeding. Profusely illustrated, describing 2,000 different varieties of trees and plants. Valuable suggestions on planting, pruning and care of orchards. Mailed for twenty-five cents.

1910 Price Catalogue mailed free

Established 1884

Paid-up capital \$200,000

**Fancher Creek Nurseries**

Incorporated

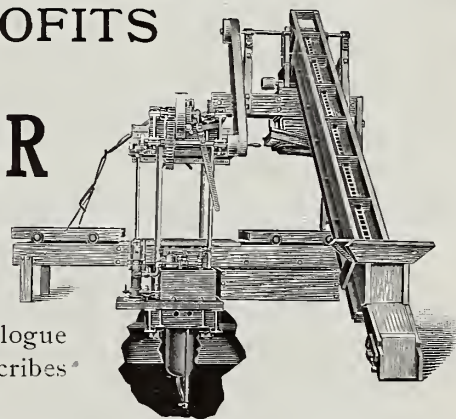
Geo. C. Roeding, President and Manager

Postoffice Box 89

FRESNO, CALIFORNIA

**BIG PROFITS**

IN

**CIDER**Write for Catalogue  
which fully describes\*  
and illustrates

THE ORIGINAL MOUNT GILEAD

**HYDRAULIC**  
*Cider and Wine Presses*Capacity, 10 to 400 barrels per day  
Made in all sizes, hand or power**FULLY GUARANTEED**Write for any information desired. We can show  
you how \$1,500.00 clean profit can be made.**The Hydraulic Press Mfg. Co.**Largest Manufacturers of Cider Presses in the World  
60 Lincoln Avenue MOUNT GILEAD, OHIO



## VEHICLES AND AGRICULTURAL IMPLEMENTS

THE BEST OF  
ORCHARD AND GARDEN TOOLS  
A SPECIALTY  
**GILBERT - VAUGHAN  
IMPLEMENT CO.**  
HOOD RIVER, OREGON

## Disc Your Ground an Even Depth



Send us your  
name and  
address for this  
**Free Booklet**  
In Colors

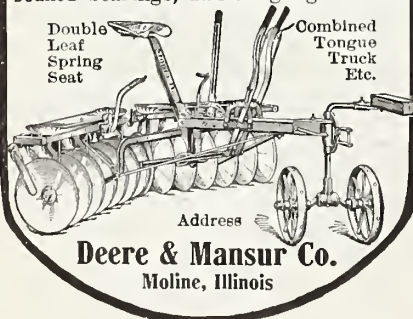
Tells how to get  
even discing for per-  
fect seed beds.

### The Deere Model B Patented Spring Pressure Secures Even Penetration

There are just as many good reasons  
for even depth discing as for even depth  
plowing and our Free Booklet shows  
how and why the Model "B" does this  
work best.

Ask us to mail you Free Book No. B 46  
and we will also send our Latest Corn  
Book and Farmers Pocket Ledger, all with-  
out charge.

It pays to use high-grade tools.  
Keep posted on up-to-date methods.  
Other exclusive features of the Model "B"  
are extra high arch frame, scrapers with-  
out rivets or set screws, hardwood, oil-  
soaked bearings, all-steel gang frames.



## D. McDONALD

Hood River, Oregon

Headquarters for  
FARMING AND ORCHARD

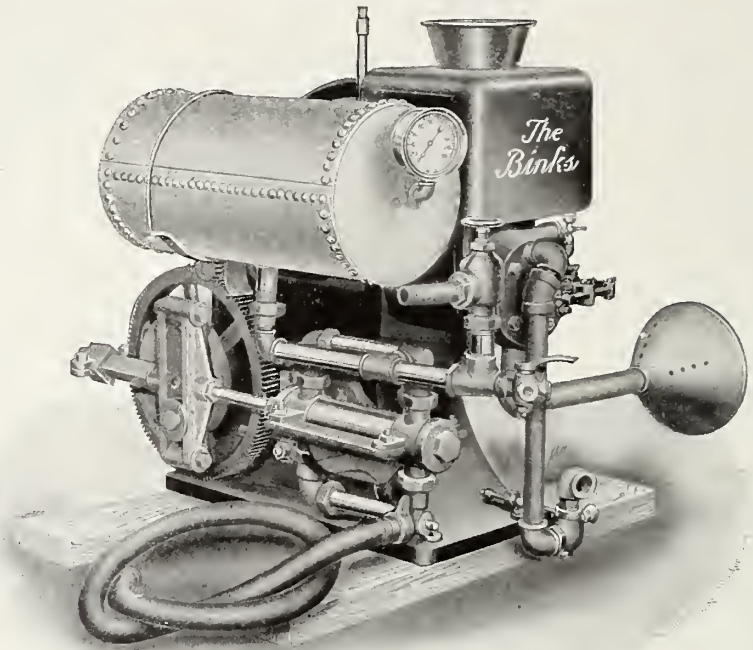
## TOOLS

Disc Harrow Extension for  
Orchard Cultivation a Specialty

When you want any kind of Orchard  
Tools come to me and get the Best

# THE "BINKS"

KING OF POWER SPRAYERS



The Binks water-cooled gasoline sprayer is the lightest, simplest and most compact power sprayer built. Engine full 2-h.p., designed specially for spraying purposes. The Binks all-brass double-acting brass valve pump simplest and best pump made today. Almost unlimited capacity, nothing to get out of order, and will certainly more than satisfy you for any work it has to perform. All we ask is, get your order in now, for we have orders upon orders for spring delivery, and those who come in late sure will be left. Get our illustrated catalogue describing this outfit, traction orchard, vineyard, potato and field sprayers, hand pumps, etc.

Made by the

**Binks Spraying Machine Co.**

CHICAGO

Parker & Fish, Union Block, Seattle, Coast Representatives

TO LARGE PLANTERS AND DEALERS:

## Contract Your Fruit Trees

NOW FOR NEXT YEAR

WE WILL DELIVER ACCORDING TO SPECIFICATIONS  
LET US PROVE TO YOU THAT WE CAN

## Northwest Nursery Company

P. O. Box QQ

NORTH YAKIMA, WASHINGTON

Nurseries: Mabton and North Yakima



CAPITAL STOCK, \$100,000      SURPLUS, \$20,000

# FIRST NATIONAL BANK

HOOD RIVER, OREGON

F. S. STANLEY, *President*  
J. W. HINRICKS, *Vice President*  
E. O. BLANCHAR, *Cashier*  
V. C. BROCK, *Assistant Cashier*

ESPECIAL ATTENTION AND CARE  
GIVEN TO BUSINESS DEALS  
FOR NON-RESIDENT CUSTOMERS

Assets over \$500,000

Savings Bank in connection

# LADD & TILTON BANK

Established 1859      Oldest bank on the Pacific Coast  
PORTLAND, OREGON

Capital fully paid      \$1,000,000  
Surplus and undivided profits      \$600,000

Officers:  
W. M. Ladd, *President*      R. S. Howard, Jr., *Assistant Cashier*  
Edward Cookingham, *Vice-President*      J. W. Ladd, *Assistant Cashier*  
W. H. Dunckley, *Cashier*      Walter M. Cook, *Assistant Cashier*

INTEREST PAID ON TIME DEPOSITS AND SAVINGS ACCOUNTS

Accounts of banks, firms, corporations and individuals solicited. Travelers' checks for sale, and drafts issued available in all countries of Europe.

LESLIE BUTLER, *President*  
F. McKERCHER, *Vice President*  
TRUMAN BUTLER, *Cashier*

Established 1900  
Incorporated 1905

# Butler Banking Company

HOOD RIVER, OREGON

Capital Fully Paid, \$50,000      Surplus and Profits are \$30,000

INTEREST PAID ON TIME DEPOSITS

We Give Special Attention to Good Farm Loans

If you have money to loan we will find you good real estate security, or if you want to borrow we can place your application in good hands, and we make no charge for this service.

THE OLDEST BANK IN HOOD RIVER VALLEY

IF YOU ARE INTERESTED IN THE HOOD RIVER VALLEY

# The Hood River Glacier

WILL TELL YOU WHAT IS GOING ON

The Glacier has been published weekly for over twenty years and covers the greatest fruit district in America in a complete and reliable fashion. Write for advertising rates if you have something to say to Hood River.

SUBSCRIPTION \$1.50 A YEAR

SAMPLE COPIES ON REQUEST

A. D. MOE, Publisher

Hood River, Oregon

## OLIVER'S SPECIAL ORCHARD PLOWS

No. 7 V

Write for  
Circulars or  
call on your  
Nearest Dealer

Handles and  
Clevis  
Adjustable

Chilled or Steel



Showing plow  
from rear, as if  
at work among  
trees, wheel  
inside of  
landside line.  
Hub of wheel  
does not project  
to strike trees.  
All levers down.  
Third base can  
easily be  
attached.

No. 17 Two or Three Furrow Gang



## Oliver Chilled Plow Works

Portland, Oregon

South Bend, Indiana

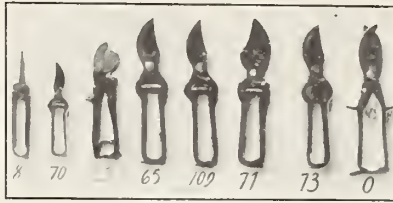
San Francisco



**If  
You  
Don't  
See  
What  
You  
Want  
Write  
For It**

No. 1, postpaid	\$0.50
No. 2, "	.90
No. 3, "	1.00
No. 4, "	.90
No. 5, "	.65
No. 6, "	.75
No. 7, "	.50
No. 8, "	.50
No. 9, "	.25
No. 10, "	.25
No. 11, "	.25
No. 70, "	.80
No. 23, "	.60
No. 109, "	.90
No. 71, "	1.15
No. 73, "	1.50
No. 0, "	2.10

**FRANZ, HARDWARE**  
HOOD RIVER, OREGON



No. 8 Apple Thinning Shears and  
Cherry Clippers, 40c per pair



### The Best Spray Pump

Sprays the tallest fruit trees from the ground. Not too heavy for low bushes. Sprays quickest and best. Does the work in half the time and does it thoroughly. Always ready. Used with bucket, barrel or tank. Lasts a lifetime. No leathers to dry up, wear out, or make trouble.

### Standard Spray Pump

Warranted for 5 Years. Price \$4.00.

It will not cost you a cent to try it. Our special offer gives complete details. Write for it today and we will also send our illustrated circular showing how this pump pays for itself many times over the first season.

**The Standard Stamping Co.**  
204 Main Street Marysville, O.



## MAULE'S SEEDS

ONCE GROWN ALWAYS GROWN

Is one reason why I can  
so prominently advertise

**Your Money Back  
if Not Satisfied**

Send me your address on a postal, and by return mail I will send you my New Seed Book for 1910, a Catalogue of 192 large pages filled to overflowing with everything good known to the best gardeners in America. Whether you intend to plant 10 acres of onions, or only a small packet of pansy seed, you should have this book in hand before ordering elsewhere.

**Wm. Henry Maule**

1730 Filbert St. Philadelphia, Pa.

## 1,000,000 Strawberry Plants Clark's Seedling

THE KIND THAT MADE  
HOOD RIVER FAMOUS

Rates:

100 plants \$1.25

1,000 plants 5.00

5,000 to 10,000 plants at

\$3.00 per thousand

Large orders at special prices

THE QUALITY OF OUR  
PLANTS IS THE BEST

**E. L. KLEMER**

Hood River, Oregon

The Leading Newspaper of Eastern Oregon

# THE DALLES CHRONICLE

Daily

THE DALLES, OREGON

Weekly

ALL THE NEWS ALL THE TIME

HIGH CLASS JOB PRINTING

BOOK AND CATALOGUE WORK A SPECIALTY



# SAVE YOUR FRUIT AND VEGETABLES

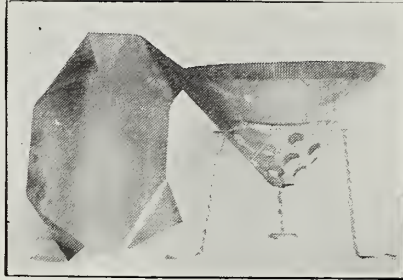
Full crops worth millions of dollars are saved by raising the temperature a few degrees in blooming time. The IDEAL HEATER will do this at a small cost for fuel and labor. This heater gives the strongest downward and outward radiation of heat, which is very essential in saving vegetables and small fruits.

Grand Junction, Colorado.

Dear Sirs: During the frost period of last spring I made a thorough test of the best heaters on the market by putting several makes into actual service, and as a result am convinced that your heater is superior to all other coal or oil burning heaters. I will be in the market for an additional supply of Ideal Orchard Heaters for next season's campaign.

Very truly yours,

C. S. HORAHAN.



Palisade, Colorado.

Dear Sirs: As I am so well pleased with the "IDEAL" smudge pot for saving my fruit crop, thought I would let you know that the pot is a great success in this part of the valley. They far surpass all others that are in the country near by.

Yours truly,

O. C. COOK.

Burns evenly without attention

SENSIBLE, SCIENTIFIC, SATISFACTORY. 56,000 USED IN 1909

SEND FOR OUR BOOKLET, "HOW FRUIT CROPS ARE SAVED FROM FROST IN BLOOMING TIME"

THE IDEAL ORCHARD HEATER CO.

Grand Junction, Colorado

# THERE IS BUT ONE HOOD RIVER THE HOME OF BETTER FRUIT

You have already heard of its famous fruits and wonderful income-paying orchards, its lovely climate and desirability for a home, but—

"THE HALF HAS NOT BEEN TOLD."

FOR ONE ACRE OR HUNDREDS, IMPROVED OR UNIMPROVED,  
IT WILL PAY YOU TO WRITE OR SEE

HARTMAN & THOMPSON

Chamber of Commerce, Portland, Oregon

Or J. F. BATCHELDER, Hood River, Oregon



# Malthoid Roofing

The roofing that always makes good. No matter how big or little the job, Malthoid fits every condition and renders a roof service that is absolutely incomparable. If you want the roofing that is right—demand Malthoid. Made by the original makers of ready roofings.

THE PARAFFINE PAINT CO.

San Francisco

Portland

Stewart Hardware & Furniture Company, Distributors, Hood River



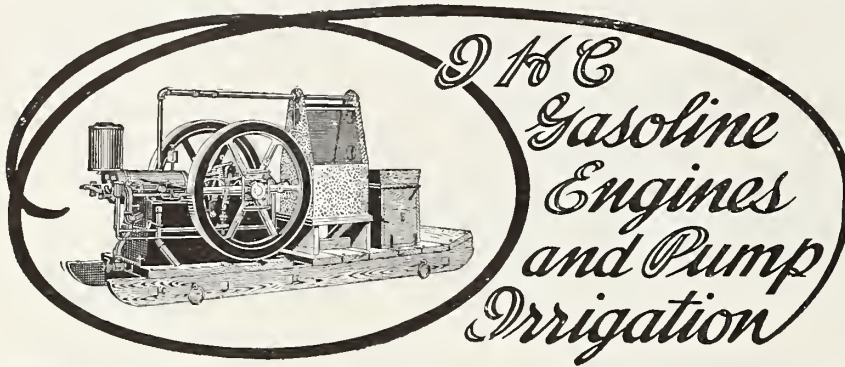
# Seeds

THE KIND YOU CAN'T KEEP IN THE GROUND

They grow, and are true to name.  
Write for prices on your wants.

188 Front Street J. J. BUTZER Portland, Oregon

Poultry Supplies, Spray, Spray Materials. Fruit Trees, Etc.



**I**RRIGATION by pumping is making hundreds of farmers prosperous. It is the modern way. It makes you master of the water situation. You can use water when and where and as long as you like. You do not have to wait on the neighbors, or agree with them as to when the water shall be turned into your lateral.

In many cases, pumping is the only means of irrigating—you cannot get water upon your land any other way.

The simple, strong, efficient I H C gasoline engines are

## Turning Waste Lands Into High-Priced Farms

There are hundreds of places where land can be had for a few dollars an acre. The moment you put this land under irrigation it jumps in value to one, two or three hundred dollars an acre.

There is no mystery and no impossibility about it. It is simply applying water to the land by means of an economical power that old-time irrigators did not have the advantage of. You can always find water in lakes, sloughs, springs, streams—in the underflow, in seepage, etc. Your I H C engine will pump it just where you want it.

The engines require but little attention. They pump water in large quantities and they do it economically. They are not adapted to pumping water only. You will have a score or more uses for them on your farm—operating your grinder, fanning mill, cream separator, churn, pump, thresher; your bean huller, cider press, alfalfa cutter, and any other machines requiring power.

The I H C line includes an engine for every section and every problem—all sizes for all farm uses; vertical, horizontal—both stationary and portable; engines on skids; sawing, pumping and spraying outfits. Also I H C gasoline tractors—first-prize-gold-medal winners—the best all-round farm tractors.

Look into this matter of pump irrigation. It may mean the reclamation of your land and a fortune for you. An International agent in your town will supply catalogues and particulars, or address any of the following houses for further information:

WESTERN BRANCH HOUSES: Denver, Colo.; Helena, Mont.; Portland, Ore.; Spokane, Wash.; Salt Lake City, Utah; San Francisco, Cal.

INTERNATIONAL HARVESTER COMPANY OF AMERICA, CHICAGO, U. S. A.  
(Incorporated)



## Northwest Nursery Company

GROWERS

NORTH YAKIMA, WASHINGTON

We Market

ONLY FULLY RIPENED AND PERFECTLY ROOTED

TREES

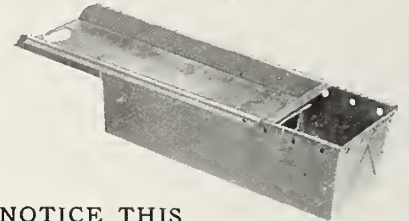
"WE GRADE HEAVY"

Nurseries: Mabton and North Yakima

Send for new price list

## Hamilton Reservoir Orchard Heater

The only heater known that combines simply and perfectly the THREE VITAL FEATURES that make for the most successful and economical outdoor heating.



### NOTICE THIS

A simple and positive regulation of the fire by simply drawing the cover. This gives a flow of heat just according to the temperature requirements of the night, and the consumption of oil just in proportion to the amount of fire used. This is the only sensible and economical principle and makes it a small consumer of oil. It couldn't be otherwise. Secondly, A reservoir of oil not under fire which admits of an all-night burn with positively no attention required after lighting. This feature makes a uniform fire throughout the period of burning and saves labor as none others can. Thirdly, It gives just the proper combustion for most successful outdoor heating. Rochester lamps and oil stoves are intended for indoor heating, and orchard heaters have to work under very different conditions. Look into this thoroughly and don't be deceived. It is the simplest in construction, the easiest to operate, and positively the most effective heater known, and these features have all been proven and tried thoroughly in this valley last spring, when more fruit was saved from the frost per heater than any other devices used. We can show you. Draw the cover and the fire does the rest.

Write us for information

HAMILTON RESERVOIR ORCHARD HEATER CO.

Grand Junction, Colorado

New from Cover to Cover

## WEBSTER'S NEW INTERNATIONAL DICTIONARY

JUST ISSUED. Ed. in Chief, Dr. W.T. Harris, former U.S. Com. of Education. The Webster Tradition Developed by Modern Scientific Lexicography Key to Literature of Seven Centuries. General Information Practically Doubled.

2700 Pages. 6000 Illustrations.

400,000 Words and Phrases.

GET THE BEST in Scholarship, Convenience, Authority, Utility.

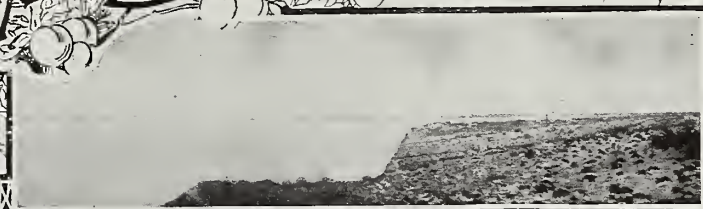


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# PECOS PALISADES

THE LAND OF  
PERFECT FRUITS



THE GREAT IMPERIAL RESERVOIR

Will guard the crops of Pecos Palisades farmers. It can be filled to an average depth of about 16 feet, two miles square, in an average month; and will store enough water to irrigate the entire tract an average season. It can be drained to the last inch.

## PECOS VALLEY OF TEXAS The Coming Fruit Country

OF AMERICA Is JUST AHEAD of  
construction of the

### Kansas City, Mexico and Orient Ry.

The Biggest Railroad Project in the U. S. Now Under Construction

**A Wonderful Discovery**—The Land Department went in ahead of the Railway and found the Pecos Valley one of the richest bodies of land in this country. Its judgment has since been backed up by the highest Agricultural authorities in America—F. D. Coburn, Secretary of Board of Agriculture of Kansas; G. W. Rockwell, Manager of all Government Irrigation Stations; Geo. E. Barstow, ex-President National Irrigation Congress; F. B. Heath, 25 years Editor of Kansas Farmer; and leading Colorado Irrigators. It is this wonderful empire that is now being thrown open to settlement.

**Development Has Just Begun**—200,000 fruit trees go out this fall, stand for the fact that expresses the judgment of the Premier Fruit Growers of Colorado, the home of irrigation, and of the \$4,000-an-acre irrigated land. These men say Pecos Palisades excels anything in their own state.

**Pecos Valley Fruit**, raised near this district, took Highest Award at St. Louis Exposition. Remember, Irrigated Lands, Improved, go to \$2,000.00 Per Acre and Higher, because they produce the income. The Best Place to Make Money in the United States is along the "Orient" Railway in the Pecos Valley ahead of the rails.

The Pecos Valley of Texas offers not only the most fertile soil and complete double Irrigation system, but it is just ready to be opened to all the World's Markets by the completion of the railroad. Watch values double and quadruple as the rails creep nearer and nearer. Will you seize this profit? Study the map and draw your own conclusions.

### PEARS

PARKER EARLE, 16 years President of American Horticultural Society, says:

"The situation, generally speaking, is a discouraging one. There is one unconquerable disease—the dreaded blight—that has swept the orchards of the older states like a desolating fire. The acreage of pears is not increasing. I was hunting for an ideal pear country until nine years ago I came to the Pecos Valley, and I found it here. We have no blight—not a sign of it. The bark on every limb is as clean and bright as a piece of mahogany. Every leaf is green and varnished and stays so till the frost brings it down in the Fall. I have never seen such healthy trees anywhere. The pear is fair skinned and has a delicate, satin finish, and, in the mouth, is unsurpassed for flavor."

### PEACHES

ARCHIE THOMPSON, General Manager of a big Irrigation Company in California, says:

"There are in the lower Pecos Valley, peach orchards producing the finest flavored peaches I have ever eaten. The entire Pecos Valley grows grapes in abundance and of the finest flavor. There are no such rivers in California as the Pecos River. Such a source of water supply is of undetermined value, and in California would be worth a gold mine."

"I have been engaged for many years developing desert land, but I never developed any that I thought quite as promising as are the lands in the Pecos Valley. All kinds of farm products grow there in great abundance. I confess that as a peach growing country it surpasses California, because California nights are too cool for peaches."

### GIVE YOUR SON THE CHANCE HIS FATHER HAD

Join me on my next excursion and see the Sunshine Valley of the Pecos. Or get my colored maps and book, "A Picture Trip Down The Pecos." Write today.

F. A. HORNBECK, Land Commissioner, U. S. & Mexican Trust Co., Fiscal Agent for  
Kansas City, Mexico & Orient Ry., 945 Baltimore Ave., Kansas City, Mo.

### GRAPES

SAM H. DIXON, Chief of Dept. of Horticulture at St. Louis Exposition, says:

"The great Pecos Valley exhibit clearly demonstrates the adaptability of the soil and climate to perfect development of the grape. The Muskat Malaga, Tokay and Cornishons exhibited by several growers in the lower Pecos Valley of Texas, were the finest type, largest bunches and superior in flavor to any other state. California is our nearest competitor; and we are nearer by 1,200 miles and our grapes come on the market six weeks to two months earlier."

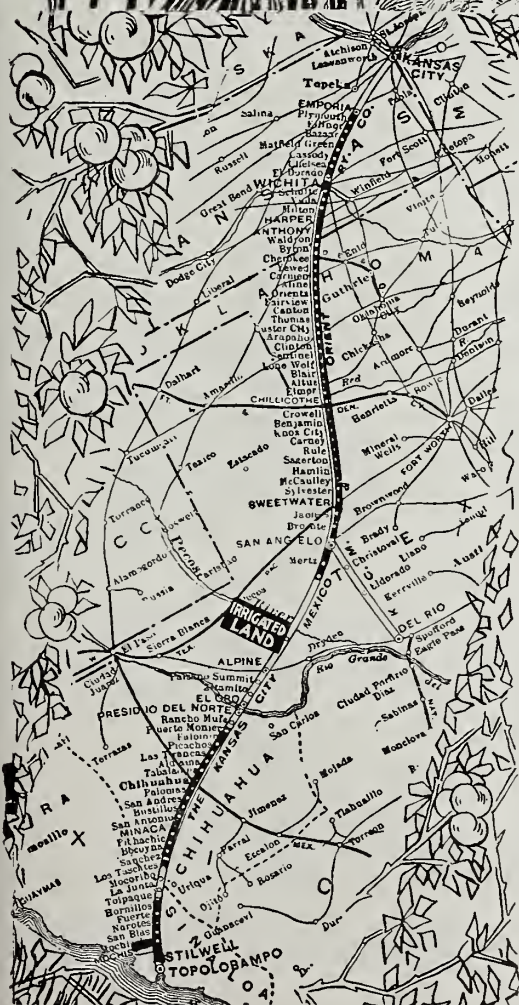
### Read What Others Are Doing on Irrigated Lands a Few Miles from Ours

"My 10-year old pear orchard, in 1907, netted me \$1,000 per acre."—C. W. Griffin. This is the orchard that took first premium at the St. Louis World's Fair.

"The average yield to alfalfa at two years old is six tons per acre, at \$12.50 per ton—\$75 per acre."—E. D. Balcom.

"I have satisfied myself that from 40 acres of alfalfa a net profit of \$2,232 can be made in a year."—J. A. Barge.

"I have sold from three-fourths of an acre of sweet potatoes, \$140 worth, and have one-half my crop left. Some weighed as much as 14 pounds."—W. Pennigar.





Almost the whole world knows of Hood River as a place that produces the best fruits, and all of Hood River Valley should know, and could know, that there is one place in Hood River, under the firm name of R. B. Bragg & Co., where the people can depend on getting most reliable dry goods, clothing, shoes and groceries at the most reasonable prices that are possible; try it.

## Lafayette Nursery Co.

Growers of Standard Sorts and  
Commercial Varieties

**APPLE, PEAR, PEACH,  
CHERRY, Etc.**

*Remember, the Root System  
is one of the most important factors.  
Ours are unsurpassed.*

Regardless of your wants, you cannot afford to place your order until you hear from us. Write today.

Address: LAFAYETTE, OREGON  
Mention "Better Fruit"

## Learn Music in Your Home

Without a Teacher

By the wonderful Simplex copyrighted system any one of ordinary intelligence can quickly learn to play piano or organ. You need not know the first principles of music. By no other method can you learn music so quickly and thoroughly as by the Simplex system. There is nothing like it. The study is easy and fascinating. In just a few weeks by this method you can play the ordinary popular and classical music. By our system you can study during spare time in your home and quickly become a capable musician.

We have delighted students in every state and territory. Many of our students, after six or eight lessons, begin playing piano or organ in church and Sunday school. Others write that after one lesson they are able to play a waltz from memory. Another student says: "Everything is so simple, and a student learns so fast that he himself cannot realize it."

If you wish to become a skilled musician, write at once for our free book, "Learn Music in Your Home Without a Teacher." Address Simplex School of Music, Conservatory 456, Kansas City, Missouri.

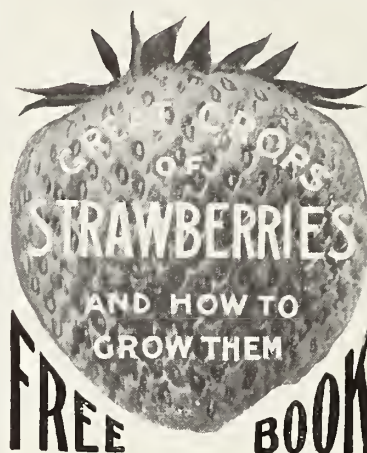
## Carlton Nursery Co.

CARLTON, OREGON

Growers of a complete line of nursery stocks. Apples, pears, cherries, prunes, walnuts, plants, etc. Satisfaction guaranteed. We are suppliers of commercial plantings. Before placing your orders be sure and send list of your wants, asking for quotations, as we know we can interest you.

Catalogue upon Application

## Our 1910 Edition of "Great Crops of Strawberries and How to Grow Them"



has been re-written from cover to cover. It is the most valuable text book on strawberry-growing ever put into print, because it teaches the Kellogg method of growing larger crops of better berries than can be grown in any other way. Every detail of the work is illustrated by photo-engravings and is explained in such a plain and practical manner that anyone who will read the instructions and study the pictures is sure to succeed.

### Strawberry Growers Who Follow The Kellogg Way

**Are Getting More Fancy Berries  
from One Acre than the Other  
Fellow Gets From Two**

The book makes you acquainted with some of these top-notch growers, shows pictures of their strawberry fields, and tells about the big yields. The man who wrote this book is the world's greatest strawberry expert. He has 110 acres in strawberries and every word is written from actual experience. He tells you how to increase the fruiting-power of the plants, and how to enrich the soil to make the plants do their best. He also shows you how to prune and set the plants, and how to mate them to insure a perfect berry from every bloom; how to layer runners to make an ideal row; when and how to cultivate; gives full instructions about spraying, mulching, picking, packing and marketing—all these essential features, as well as everything else pertaining to the work, are made perfectly plain by pictures. Besides all this the book explains how the Kellogg strain of thoroughbred plants is produced, and gives positive proof that

### These Famous Plants Have Won the World's Highest Fruiting Record

The book also shows pictures of fifty-four different kinds of strawberries, with a complete description of each variety.

We feel mighty proud of this book. It is surely worth its weight in gold to anyone who has an ambition to become an independent, money-making strawberry grower. If you want one, just say so, but don't send any money. This ad says the book is free, and what we say we do, we do do, and no backing out.

**R. M. Kellogg Company**  
Box 355, Three Rivers, Mich.

### Kellogg's Thoroughbreds Grow Bumper Crops

MORE than 13,000 quarts of strawberries to the acre is the 1908 record of O. J. Wigen, of Creston, B. C., who writes as follows, under date of July 28, 1908: "Having just finished the marketing of 53,000 quarts of strawberries from a little over four acres of ground set with your Thoroughbred Pedigree Strawberry Plants, I feel it my duty to let you know of the performance of your plants in this part of British Columbia; and I would add that, under a more perfect system than I have been able to follow, this yield can be greatly increased." O. J. Wigen.

### "Great Crops of Strawberries" Worth \$100.00 to Him

FARM JOURNAL, 1025 Race St.  
Philadelphia, Feb. 20, 1908.

R. M. Kellogg Co., Three Rivers, Mich.  
Gentlemen: We have a letter this morning from Thomas B. Magee, of Browning, Montana, in which he says: "I have derived great benefit from your advertisements, especially the R. M. Kellogg Co., of Three Rivers, Mich., whose Strawberry Book is worth a hundred dollars to anyone interested." With best wishes. Very truly yours,  
WILMER ATKINSON CO.,  
Chas. F. Jenkins.

# JUST OUT

WRITE FOR IT

# 1910

# SEED CATALOG

OUR 124-PAGE SEED ANNUAL  
NEW VARIETIES—NEW PRICES  
NEW ILLUSTRATIONS  
NEW FACTS

WRITE FOR  
IT TODAY

Ask for No. 200.  
Sent Free Postpaid.

PORTLAND  
SEED CO.

The  
"Diamond  
Quality"  
House

# PORTLAND SEED CO. PORTLAND OREGON

WHEN WRITING, ADVERTISERS MENTION BETTER FRUIT



# Apple Seedlings

We have some surplus, both American and French grown  
All grades for grafting and budding

## Imported Fruit Tree Stocks

Now arriving—Cherry, Pear and Plum stocks—All grades

### APPLE GRAFTS

Piece and Whole Root

Order quickly

Also a complete line of general nursery stock, mostly in storage

SEND LIST FOR PRICES

### WANTED—APPLE SCIONS

## Shenandoah Nurseries

D. S. LAKE, Proprietor

SHENANDOAH, IOWA



**RHODES DOUBLE CUT PRUNING SHEAR**

Pat'd June 2, 1903.

**RHODES MFG. CO.,**  
GRAND RAPIDS, MICH.

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

Dept. M



## The Stark Year Book for 1910

is ready to mail. It will be sent to any person interested in fruit-growing on receipt of 7 cents to cover postage. The Stark Year Book for 1910 represents an entirely new idea in nurserymen's literature—it is a work of art as well as a catalogue of Stark Nursery products. Within its covers are 32 full-page illustrations of fruits and flowers, representing 175 varieties, done in four colors, and exactly reproducing nature. 84 pages are devoted to descriptions, prices, and records.

Stark Delicious, the apple that has revolutionized orchard planting and established a new standard of apple values (selling at \$10.00 per bushel box this year); Stark King David, another apple of wondrous quality and merit; Stark King Philip, a hardy black grape of California grape quality, and dozens of the very best things in the horticultural world are fully described, illustrated, and priced.

To any one planting one tree or many, of fruits or ornamental, this book is of inestimable value—a horticultural text-book—a guide to proper selection.

Stark trees have stood the supreme test of actual planting for 85 years—they are the yard-stick by which all other nursery products are measured—they are the first choice of this country's most successful orchardists. The success of the orchard is dependent on the kind and quality of tree planted. Stark varieties are the best of the best. Our record of 85 years of successful selling is a positive guarantee of tree quality.

Before you decide to buy, send 7 cents for the Stark Year Book—do it today before the edition is exhausted.

**Stark Bro's Nurseries and Orchards Co.**

Lock Box 57, Louisiana, Missouri

## THE DALLES NURSERIES

(Successors to R. H. Weber)

GROWERS OF

Choice Fruit and Ornamental Trees, Grape Vines, Small Fruit Plants and Shrubbery

We do not employ Agents, but sell DIRECT to the Planter, making Commercial Orchards a specialty

All correspondence should be addressed to

**THE DALLES NURSERIES**

122½ Grand Avenue

PORTLAND, OREGON

Remember, our Trees are grown strictly without irrigation

## Burpee's Seeds that Grow

140 VARIETIES ANY QUANTITY

Plenty of stock in our 40,000 pounds

Growing Plants as Season Requires

All Makes High Grade

Pruning Tools

Garden Tools

Hose and Spray Nozzles

International Stock and

Poultry Food

International Remedies

Incubators and Brooders

Everything for Building

Everything for Furnishing

**Stewart Hardware & Furniture Co.**

22,000 feet floor space Hood River, Oregon

420 Acres Devoted to Nursery Purposes

## THE WOODBURN NURSERIES

Established 1863 by J. H. Settlemier

Grower of Choice

**Nursery Stock**

**F. W. SETTLEMIER**

Woodburn, Oregon

## GRAPE GROWERS

### Attention

Flame Tokay, Black Cornichon, Black Hamburg, Black Gros Colman, Black Muscat, Muscat, Rose of Peru, Black Ferrara and other fresh, healthy cuttings for delivery this winter.

Prices (reasonable) on application  
Order early

A. J. Gallaway Healdsburg, Cal.



# SURPLUS TREES

50,000 Peach      4,000 Comice Pear  
10,000 Winter Nellis Pear

## WAPATO NURSERY

TIM KELLY, Proprietor

WAPATO, WASHINGTON

## Thoroughbred TREES

Building a first-class fruit tree is similar to developing a fine strain of stock; you've first got to know your business and then apply your knowledge at every stage of the process.

We use none but good healthy roots on which to graft or bud. We obtain from proven orchards our scions, and our grafting and budding is done by experienced help under the supervision of men who have put in their lives at the business.

Our stock is carefully planted in a systematic manner and mistakes are practically eliminated from beginning to end.

There's a well defined method in every part of our work.

We cultivate and care for our trees, we believe, better than most nurseries. It's a business with us, and our constant aim is to improve. We never discard a proven method for any untried scheme.

We ripen our stock thoroughly in the fall, so the early frosts have no effect on it. We know how and we deliver the goods. Ask our customers. It makes a lot of difference as to how a tree stands the winter, whether or not it was thoroughly matured before digging.

You're welcome to come at any time of the year and see our methods. Just now, December, January and February, we're "house grafting," preparing for the largest apple plant ever made west of the Mississippi.

## Washington Nursery Co.

Toppenish, Washington

Office—6 South First Street

Salesmen Everywhere

More Wanted

## ORCHARDISTS' SUPPLY CO.

W. M. Grisinger, Manager

Box 543, Salt Lake, Utah

Offers at wholesale and retail for spring delivery:

200,000 Peach, complete assortment.

25,000 Apple, mostly Jonathan

20,000 Pear, Bartlett & Anjou

10,000 Cherry, sweet sorts

## For Northwest Fruit Growers in General

A FULL STOCK OF

Spitzenberg  
Jonathan, Winesaps  
Rome Beauties  
Etc.

31 YEARS IN BUSINESS

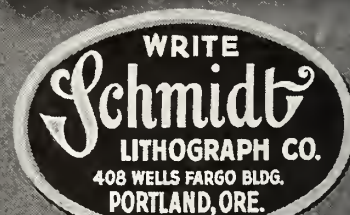
## Milton Nursery Company

A. MILLER & SONS, Incorporators

MILTON, OREGON

LET US SEND YOU  
SAMPLES  
OR  
FURNISH ESTIMATES  
FOR  
ATTRACTIVE

# FRUIT CASE LABELS



A POSTAL CARD WILL BRING  
OUR SAMPLE BOOK OF  
STOCK FRUIT CASE LABELS

A REPUTATION TO SUSTAIN

## VINELAND NURSERIES COMPANY

PROPAGATORS OF

RELIABLE NURSERY  
STOCK

All Stock Budded from Bearing  
Trees, Fruit and Ornamentals

CLARKSTON, WASHINGTON

## WHAT ARE YOU GOING TO PLANT? Tokays, Cornichon, Muscat or Malagas

We have them, strong, well-grown one-year vines, finest in the land

How do BARTLETTS strike you this season? Plenty of them, stock cannot be beaten, and prices right. Then how's SPITZENBERG, YELLOW NEWTOWN PIPPIN and YELLOW BELLEFLEUR?

One nurseryman visiting our Nursery said, "Gentlemen, you should be proud of this stock," and we are. So will you be when you plant it.

What about CHERRIES? BING, LAMBERT, BLACK TARTARIAN, ROYAL ANNE and CHAPMAN. It would not be hard to sell you these, could you see them.

PEACHES, stocky, well grown, and, say, they have the roots, plenty of them, and not cut off at top of ground.

Another thing: Our prices are RIGHT, we dig our stock RIGHT, handle it RIGHT, treat you RIGHT, and it is sure RIGHT in every way. Write us and we will tell you all about it. Better still, come and see us and we will show you.

CHICO NURSERY CO.

Chico, California



## San Jose Mayette

The only really immune commercial walnut; blooms late, but matures earlier than Franquette; is a heavy bearer, and nut a true Grenoble type. Franquette in the same orchard in San Jose, California, blights badly

LEONARD COATES NURSERY CO., Inc.

Sole Distributors

Morganhill, California



## Loganberry Plants

50c PER DOZEN, PREPAID

\$10 PER 1,000, F. O. B.

Special prices in lots of 50,000 or more.

ASPINWALL BROS.

Brooks, Oregon

## Russellville Nursery Grows Trees of Quality

ACKNOWLEDGED BY MANY LEADING NURSERYMEN AND FRUIT GROWERS TO BE THE BEST GROWN ON THE COAST

For commercial orchards we quote the following: 100,000 apple, 50,000 cherry, 50,000 pear and other stock in proportion. Thirty acres of ornamental trees. See our stock and get prices before buying elsewhere. No agents.

Mention "Better Fruit"

H. A. LEWIS, Proprietor, Montavilla, Oregon

## FRUIT GROWERS, YOUR ATTENTION!

Royal Ann, Bing and Lambert cherry trees; Spitzenberg and Newtown apple trees; Bartlett, Anjou and Cmcice pears, and other varieties of fruit trees

A. HOLADAY

MONTE VISTA NURSERY

SCAPPOOSE, OREGON

## OUR TREES ALWAYS PLEASE

Satisfaction guaranteed

A NICE ASSORTMENT OF COMMERCIAL VARIETIES

Prompt attention given to mail orders

SELAH VALLEY NURSERY Co. R. F. D. No. 2, Selah, Washington

## J. B. PILKINGTON

P. O. Box 242 PORTLAND, OREGON

Grower and Importer of

FINE NURSERY STOCK, FRUIT, NUT AND ORNAMENTAL TREES, SHRUBS AND ROSES

Have No Agents

Direct to Planter

Send for Catalogue

## Plant Sibson's Roses

Send postal for free catalogue which contains one of the best collections of field-grown

# ROSES

IN AMERICA

The Sibson

Rose Nurseries

1180 Milwaukie Avenue (Station D)  
PORTLAND, OREGON

WE WERE AWARDED

# Gold Medal

AT THE

Alaska-Yukon-Pacific Exposition  
In Seattle, 1909

FOR DISPLAY OF

NURSERY STOCK

The Sunnyside Nursery  
Company

Incorporated \$100,000

Main Office and Nurseries at Sunnyside, Wash.

## LAYRITZ NURSERY

Victoria, British Columbia

Headquarters for

CHOICE NURSERY STOCK

in British Columbia

Cox Orange Pippin

The fancy dessert apple of the very highest quality  
our specialty

GET CATALOG AND PRICE LIST

## PORTLAND WHOLESALE NURSERY COMPANY

Rooms 1 and 2 Lambert-Sargeant Building  
Corner East Alder Street and Grand Avenue  
PORTLAND, OREGON

## RICHLAND NURSERY

Richland, Washington

FRUIT TREES

Complete stock of leading varieties of  
Apples, Pears, etc.

WRITE US FOR PRICE LIST

## An Improved Freestone Peach

The best for canning, drying and market. *Fay Elberta Peach*. Superior to Muir or Lovell for canning or drying, and superior to any for market. A heavy and regular bearer, very attractive, firm, and of exceptionally fine flavor. Write for descriptive circular.

The Silva-Bergtholdt Company  
163 Orchard Street Newcastle, California

## SALESMAN WANTED

To take our cash weekly selling complete line of  
fruit trees and ornamental shrubbery

Outfit free

Salem Nursery Company, Salem, Oregon

## AGENTS

Big money made selling our nursery  
stock; great demand; fine line.

Cash commission weekly.

CAPITAL CITY NURSERY CO.  
Salem, Oregon



## SEED Catalog NOW READY

We want every Farmer, Gardener, Poultryman and Stockman to have a copy of our new Seed Book. It contains 120 pages of everything needed to make a success of farming in the West. In this respect Lilly's Seed Book is better and more authentic than other publications of this nature. It is the experience of over twenty-five years of honest seed selling in the West.

Lilly's Seeds are Best for the West and are sold by your dealer. Send today for new catalog.

**THE CHAS. H. LILLY CO.**  
SEATTLE PORTLAND



The International Harvester Company, Chicago, Illinois, are producing some of the handsomest booklets ever issued by any manufacturing firm. They are not only beautiful, but interesting and instructive. Fruit growers wishing any further information about their lines of implements can get catalogues pertaining to any of the following lines, by writing to the International Harvester Company, Chicago, Illinois, and mentioning "Better Fruit." The International Harvester Company line includes Champion, Deering, McCormick, Milwaukee, Osborne and Plano harvesting and haying machines and tools; tillage implements; Keystone shellers, hay loaders, rakes, gasoline engines, hay presses, feed grinders, auto buggies, auto wagons and runabouts; Dairymaid and Bluebell cream harvesters; Corn King, Clover Leaf and Kemp Twentieth Century manure spreaders; Weber, Columbus, New Bettendorf and Steel King wagons; Buckeye and Sterking farm trucks; Belle City threshers' binder twine.

## "THE OLD RELIABLE" Albany Nurseries

INCORPORATED

ALBANY, OREGON

LARGE STOCK, FIRST-CLASS TREES

Place Your Orders Now

CATALOGUE FREE

MORE SALESMEN WANTED



## CLARK'S SEEDLING

*The Berry that made  
Hood River famous*

The stock for spring planting is the largest and I believe the best that I have ever grown. Prices and further information furnished on application.

**A. WHITEHEAD**  
HOOD RIVER, OREGON

## Hood River Nurseries

Have for the coming season a very complete line of

## NURSERY STOCK

Newtown and Spitzenberg propagated from selected bearing trees. Make no mistake, but start your orchard right. Plant generation trees. Hood River (Clark Seedling) strawberry plants in quantities to suit. **Send for Prices**

**RAWSON & STANTON, Hood River, Oregon**

Irrigation  
Farmers Can  
Grub Brush,  
Level Land,  
Cut Laterals

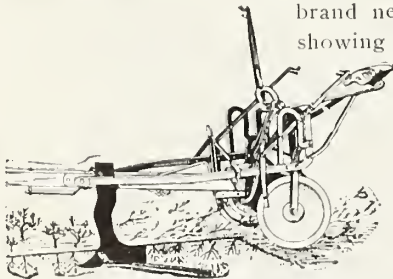


Throw borders, clean laterals, make shallow ditches, grade roads—do a score of dirt-moving operations cheaply, easily, quickly—all with the many-purpose

## 20th Century Grader

Grub sagebrush, four acres a day, at \$1.25 to \$1.50 an acre. Cut laterals, \$1.25 to \$1.50 a mile. Slope land, level it, fill in hollows, pare off hummocks at one-third usual expense. **BE SURE** to send right off for our free,

brand new "picture" catalogue, showing thirty-three photos, many large, with machine working in soil. You'll get ideas from it worth cash to you, even though you don't buy now. A postal will do.



**The Baker Manufacturing Company**

742 Fisher Building

CHICAGO, ILLINOIS

DO YOU WANT

## Trees of Quality?

You are either not interested in "Trees of Quality," or you have not investigated for yourself what The Winfield Nursery Company is doing in the horticultural world.

Our booklet, "Trees of Quality and What Others Say of Them," illustrates our system of breeding up and selecting the best. It further tells of the big commercial planters' experience with The Winfield Nursery Company's trees in irrigated districts.

**Best Scions from Your Own Country**

Do you know we now have men in your locality visiting the best orchards to mark them, showing improved individuality from which to select scions? Mail coupon at once.

## The Winfield Nursery Co.

Incorporated

J. Moncrief, President

Winfield, Kansas

### COUPON

I am interested in "Trees of Quality" and will plant about \_\_\_\_\_ trees. Mail free of charge your booklet.

Name \_\_\_\_\_

Post Office \_\_\_\_\_

State \_\_\_\_\_



## THE LAFEAN BILL IS IN A DEEP PIGEONHOLE

The Lafean apple-packing bill, intended to drive Oregon and other western apples out of eastern markets, lies dormant in the house committee on agriculture, and thus far there has been no indication that it is to be pressed for consideration. The bill is not a new one. In one form or another it has been introduced in several successive congresses, but never yet has it received consideration at the hands of any committee to which it has been referred. If Mr. Lafean has any intention of urging its consideration this session, he has given no intimation of his purpose to the chairman of the committee on agriculture, and without request from him the committee will take no notice of his bill.

The Lafean bill in its present shape seemingly stands no chance of passage. The radical and revolutionary character of its requirements and the manifest object sought to be attained are sufficient to guarantee a fight against it in committee, and it is doubtful if the bill could be reported to the house; but, should a report be made, it would only be after the bill had been materially amended so as to remove the more objectionable features. But more than this, it is seriously questioned whether Congress will feel disposed to enter upon

the regulation of the size and contents of packages in which foodstuffs are shipped in interstate commerce. Such legislation was not attempted under the pure food law, and it is not believed to be the purpose of Congress at this late day to set a precedent such as would be established by the passage of the Lafean bill.

Representative Lafean introduced his bill in the last Congress, it was referred to the committee on interstate and foreign commerce and there died without ever being considered. In the special session last spring he re-introduced it, and again on January 5 introduced it, with some changes. The latest bill, so far as the western apple country is concerned, is quite as obnoxious as any of its predecessors, for it provides that boxes in which apples are packed for shipment out of the state in which they are grown must have a capacity of not less than 2342 cubic inches, the figure named in previous bills. But in addition to defining the capacity of apple boxes, the new bill fixes the standard capacity of apple baskets and barrels, the former to be of the same capacity as boxes, 2342 inches, and the barrels to be of the following dimensions: Length of stave, 28½ inches; diameter of head, 17¼ inches; distance between heads, 26 inches; circumference of bulge, 64 inches.

From the western standpoint, these dimensions for baskets and barrels will be helpful, for the standards prescribed will not meet with the approval of all eastern apple-shippers, for the reason that uniform sizes of baskets and barrels are not in general use, and there will be objection to a bill requiring a change in the manner of packing eastern apples.

When it comes to fixing the standard grades of apples, the Lafean bill provides as follows:

"Apples of one variety, which are well grown specimens, hand-picked, of good color for the variety, normal shape, practically free from insect and fungus injury, bruises and other defects, except such as are necessarily caused in the operation of packing, or apples of one variety which are not more than 10 per centum below the foregoing specifications, are standard grade 'U. S. size A,' if the minimum size of apples is two and one-half inches in transverse diameter; or are standard grade 'O. S. size B,' if the minimum size of the apples is two and one-fourth inches in transverse diameter; or are standard grade 'U. S. size C,' if the minimum size of the apples is two inches in transverse diameter."

Under the terms of the bill a box of apples will be considered misbranded, within the meaning of the pure food law, if its contents be less than 2342 cubic inches, unless it be plainly marked on end and side with the words "short box," or with the number of cubic inches the box contains, and baskets and barrels are dealt with similarly. Apples will also be considered misbranded if their dimensions do not conform to the label, or if the label fails to bear a statement of the name of the variety, the name of the locality where grown, and the name of the packer or the person by whose authority the apples were packed and the package marked.

The obnoxious feature of the bill, so far as the western apple growers are concerned, is that fixing the standard for boxes. Mr. Lafean, for some reason, has arbitrarily chosen a box containing 3,242 cubic inches; the Winchester bushel, the recognized standard in the United States, contains 2,150.4 cubic inches. Therefore the Lafean box calls for 192 cubic inches in excess of a bushel. Why such a figure should have been adopted is a mystery to the members of the committee. Mr. Lafean has never offered any explanation, yet he apparently is the only man in Congress interested in the bill.

Fortunately for the West, Representative Hawley is a member of the committee on agriculture, before whom the bill is pending, and he has made it a point to guard against any report on the measure until he and the apple growers and shippers of Oregon and other western states can pre-

sent their arguments against the obnoxious clauses. Chairman Scott of the committee has assured Mr. Hawley he will do nothing with the bill unless urged to do so by its author, and, if request is preferred, Mr. Hawley will be notified in time to enable representatives of the western apple growers to come to Washington and present their protests to the committee. But until Mr. Lafean demands such action, it seems unnecessary for such representatives to make the trip to Washington or to demand hearing. In Mr. Hawley's judgment it would be inadvisable for the opponents of the measure to insist upon its consideration, when its sponsor evinces no live interest in its welfare.

In speaking of the bill and its prospects, Mr. Hawley said:

"If any attempt is made to secure a report from our committee on that measure, I shall do my utmost to bring about amendments which will adequately protect the apple industry of Oregon and other western states. The people of the west were the first to pack apples in boxes, and after years of experiment they have found a box standard size that just meets the requirements. The box in common use has a capacity of 2,200 cubic

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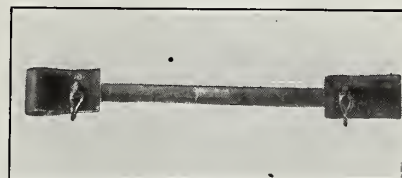
In the famous Yakima Valley, by competent men, long experienced in the business.

Write for catalogue.

**Yakima Valley Nursery Co.**  
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Sent to any address upon receipt of  
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**C. H. SMITH** Freewater, Oregon

Mr. C. H. Smith, Freewater, Oregon.

Dear Sir: I consider your whiffletree fender a big step in the right direction for the protection of nursery stock and orchard trees. I can cheerfully recommend this as a valuable device.

Very truly yours,  
W. S. Thornber.

# National Irrigation Journal

GOLDEN OPPORTUNITIES IN THE GOLDEN WEST

Edited by Clyde A. Morrison. Published by The Henry O. Shepard Company, 120 Sherman Street, Chicago. The leading publication of its kind in the world for the investor, home-seeker, farmer, irrigation companies and agents. Covers the entire subject. Printed on the best grade of paper, with highly embellished cover printed in gold and colors, and a three-color process picture every month illustrative of successful irrigation. Special articles by authorities on irrigation.

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120 Sherman Street, Chicago



# All Fruit Growers



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Their Headquarters  
at

## The Portland

H. L. BOWERS  
Manager Portland, Oregon

## A Trip to the Coast

Is incomplete without a ride  
on the

## Mt. Hood Railroad

By Mountain Streams, Virgin Forests,  
Apple Orchards and Snow  
Capped Peaks

Connects with O. R. & N.  
at Hood River, Oregon

inches, slightly more than the Winchester bushel. It is adapted to the kinds and varieties of apples grown in our country, and enables the growers to ship compactly and securely, and to get their fruit to market in good condition.

"If we of the West should be compelled slightly to increase the size of our apple boxes, the fruit could not be handled to as good advantage; it would be loose in the package, and would suffer in transit. Boxes on hand would have to be destroyed and there would be a great financial loss, for which there is no justification.

"Personally, I am unable to see that there is any legitimate objection to the apple box now in common use throughout the West. Not only has it capacity in excess of the Winchester bushel, so that there can be no ground for the cry of 'short package,' but our western box has come to be looked upon in the markets of the United States as a guarantee of quality and uniformity. Our apples are always sold 'by the box,' and not 'by the bushel.' Every box is marked with the number of apples contained, so that the buyer knows, in an instant, what he is getting. The number indicates the size of the fruit.

"I shall never voluntarily consent to a favorable report on the Lafean bill unless the standard box capacity prescribed by it is changed to conform to the standard that now prevails in the West. As a matter of fact, I do not believe that any legislation is necessary. The western apple growers, in their own interest, have fixed standards, and the co-operative associations through whose hands the western apples are marketed guarantee the quality of every box of apples sold, and see to it that the standard is maintained. It is not the western grower who needs regulation.

"If, later on, any attempt is made to induce the committee on agriculture to consider the Lafean bill, I will notify the Oregon Horticultural Society and other western associations that hearings are to be had, and we will see that all who desire are given an opportunity to be heard, in order to present their reasons for amending the bill or suppressing it altogether. But up to the present time there has been no indication of a purpose to press the bill, and until such purpose is shown it would seem unnecessary for our people to come to Washington. I am in a position to keep in touch with this matter, and will be advised the minute any move is attempted. As a matter of precaution I have explained the disadvantages of this measure to the chairman of the committee and to other members who are interested, and I believe the committee will be open to conviction if the issue ever arises."

In a nutshell, the Lafean bill is a measure drawn at the behest of certain eastern apple growers who have found their market rapidly falling into the hands of Oregon, Washington and other western competitors. Western apples are today commanding top prices throughout the East, due solely to the superiority of the fruit itself and the attractiveness with which it is shipped to market and placed on sale. The superior methods of western production and shipping have enabled Oregon, Washington, Idaho and Colorado growers to crowd out the eastern growers in their own markets, and the Lafean bill is proposed to put an end to, or seriously hamper, the westerners in their fight for these markets.

The Department of Agriculture, which is alive to this situation, has undertaken to arouse eastern growers to the necessity for adopting western methods, but thus far has met with little success. It is easier for the eastern growers to raise and sell inferior fruit than to exercise the precaution characteristic of his western competitor, and now the eastern grower seeks, through the Lafean bill, to drive out his competitor by direct legislation. The issue is one that can clearly be established, and once the motive is shown, the bill will stand little chance of favorable consideration. But Mr. Lafean, in half a dozen years, has made no move to get his bill out of committee, and there is no indication that he will put forth any unusual effort this session.—Oregonian.



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Trains stop directly in front  
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OLDEST LIVERY COMPANY  
IN THE VALLEY

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SEE THE  
**UPPER HOOD RIVER VALLEY**

The Best of Land      Plenty of Cheap Water  
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Unexcelled for  
**Apples and Strawberries**

*I Handle These Lands*

**W. H. MARSHALL**

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# Gibson Fruit Company

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## Great Central Market

We specialize in fancy Pacific Coast and Northwestern fruit. We are general distributing and Eastern marketing agents for some of the largest associations and shippers in the Northwest. We make a specialty of selling f. o. b. in transit or delivered, whichever way will realize best results for the shipper.

If you have not already arranged for the disposition of your shipments, make us your general Eastern sales agents. Will give your business special attention.

Mr. W. C. Michael, our Northwestern representative, is well known to a large number of the shippers of that section, and will be glad to call and see you during the season.

We own our own cold storage plant, the only one on South Water Street. It is an up-to-date one with a capacity for one hundred thousand boxes of apples. This, in connection with our store, places us in the best position of any one in the fruit business to protect the interests of the shippers.

We refer you to The First National Bank, Chicago, The Chicago Packer, and the Produce Reporter Company



**\$1000****PER ACRE NET****\$1000**

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This is not an unusual profit for producing apple orchards in Oregon. It is a perfectly possible profit for any man of persistence and common sense who will select land in a proven apple district in Oregon and develop it properly. If you are at all interested in fruit growing we advise you to investigate the Mosier Valley. This valley adjoins the famous Hood River Valley and is properly a part of it so far as the character of the soil and the quality of the fruit produced as concerned. We claim that the apples produced in Mosier Valley are second to none and that there is no section anywhere which offers the fruit grower a greater opportunity. Land in the Mosier Valley can be obtained for very low prices, and can be cleared with comparatively little effort. These lands can be made to increase in value from 100 to 500 per cent in two years by clearing and planting trees. We invite the most careful and critical inspection of Mosier Valley, confident of the outcome. For full particulars about this Valley address

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MOSIER and Hood River apples bring the highest prices.

MOSIER district has natural air and water drainage.

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MOSIER Valley Bank is owned by the MOSIER people.

MOSIER Telephone Company is owned by the people and connects valley and town.

MOSIER is a rapidly growing district, but good land is still cheap.

The above FACTS, coupled with the scenic beauty and the ideal climate of this locality, make MOSIER well worth thorough investigation.

I have large and small tracts of improved and unimproved land in this vicinity ranging in value from \$40 to \$100 an acre for unimproved and from \$250 to \$500 an acre for improved. Give me some idea as to what you are looking for and I will mail you description and prices. Ask for booklet.

**D. D. HAIL, REAL ESTATE, MOSIER, OREGON**

**TO DESTROY APHIS AND THRIPS WITHOUT  
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**LISTEN TO THESE:**

ROGUE RIVER (OREGON) FRUIT GROWERS' UNION: "Black Leaf" does not burn nor injure the foliage or the fruit and will eradicate the aphids immediately.

DELTA COUNTY (COLORADO) FRUIT GROWERS' ASSOCIATION: "Black Leaf" is the best remedy we have ever found for plant lice on fruit trees.

PROFESSOR GILLETTE, of the Colorado Experiment Station: We have found "Black Leaf" very satisfactory indeed.

HOOD RIVER (OREGON) APPLE GROWERS' UNION: We are satisfied "Black Leaf" is going to take the place of all other aphid sprays in this section.

MR. A. N. JUDD, Watsonville, California: For all plant lice, and green or black aphids, "Black Leaf" Tobacco Extract is the most gratifying of all washes.

PRICE: In 5-gallon jacket cans, 85c per gallon; in 1-gallon cans, \$1.00, f.o.b. Louisville, Kentucky. The usual Western price is 90c to \$1.00 per gallon, in 5-gallon cans, owing to increased freight.

USUAL DILUTION: For Green and Woolly Aphid and Black Peach Aphid, 1 gallon "Black Leaf" in 65 or 75 gallons water. For Thrips, 1 to 50 or 60.

TO SAVE YOU FREIGHT: Write us for name of agent nearest you.

**The Kentucky Tobacco Product Co., Inc., LOUISVILLE, KENTUCKY**

## **\$50.00 a Week for Women**

**No Longer Necessary for Women to  
Be Dependent**

Most women would consider \$50 a week to be a splendid earning, and yet there are many who make this much, and some even more, and the best part of it is that a college education is not essential. Did you ever consider how scarce are good, high-class dressmakers? Those who are really competent can command high prices for their skill. They secure without difficulty all the work they can do. The high-class dressmaker can secure a large income if she wishes it. One woman, the head designer in a large Chicago institution, is said to receive \$10,000 a year. Salaries of \$25 to \$50 a week are common.

No matter what your situation, you can learn dressmaking at your home in spare time by the correspondence course of the American College of Dressmaking, recognized as the oldest and largest institution of its kind in the world. This copyrighted course is so complete, so simple and so easy that we have graduates as young as twelve years of age who have thoroughly mastered it. By this system you can learn in six to eight weeks time to design, draft, cut, fit, make, drape and trim ladies' garments and children's clothes. Every woman should learn dressmaking. Make your own clothes and dress far better and more stylishly at half usual cost; or if you wish to become independent, open dressmaking parlors, employ others to do the work under your direction, and by reason of your ability to turn out work which is more stylish and better fitting, you will have all you can do. The American Copyrighted System is a fascinating study and a profitable investment. The cost is very small. Write today for free illustrated book. Address American College of Dressmaking, 1230 Reliance Building, Kansas City, Missouri.





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The irrigated lands in Montana, Idaho, Washington and Oregon reached by the Northern Pacific offer you the most profitable opportunities for farming and fruit growing to be found anywhere in the United States.

The prize-winning fruits almost invariably come from orchards in the Northwest. The climate and the soil are great factors in the popularity of this country. People are constantly buying Northwestern lands. Don't delay too long—write tonight for information about the state that interests you.

The Scenic Highway Through the Land of Fortune

## Northern Pacific Railway

L. J. Bricker, General Immigration Agent, St. Paul, Minnesota  
A. D. CHARLTON, Assistant General Passenger Agent, Portland  
A. M. CLELAND, General Passenger Agent, St. Paul





## A SMALL BUNCH OF SIGNIFICANT LETTERS

Salem, Oregon, December 22, 1909.  
Better Fruit Publishing Company:

Dear Sir: Your favor of the 16th inst. is at hand, relative to small fruit cuts. I shall certainly take advantage of the opportunity and send you what cuts we have available for this occasion. I wish we were able to send you something more substantial than electrotypes, for I believe that you are doing a great work for the entire Northwest. We are, however, boosting for "Better Fruit" among all the growers who frequent our headquarters, and hope to assist you in every way we can at all times.

A. F. Hofer,  
Secretary Board of Trade.

◆ ◆ ◆

New York, December 21, 1909.  
Better Fruit Publishing Company:

I have just been looking over your November number and I am so struck with the beauty of it, and realizing from my own experience how a pub-

lisher likes to know when he has done well, that I am prompted to write you regarding it.

You certainly deserve the heartiest congratulations for the artistic appearance of this number. I am particularly attracted by the handsome half-tone work which your printer has brought out in a manner that is almost perfect.

I hope you won't get the idea that this letter is a jolly, because I really mean it.

Yours very truly,

A. Eugene Bolles,  
General Manager Advertising & Selling.

◆ ◆ ◆

Portland, Oregon, December 18, 1909.  
Better Fruit Publishing Company:

We wish to thank you for the kind offer as outlined in your favor of the 17th.

We will forward the cut to you the first of the week.

The writer just returned from the East, and in Michigan found that "Better Fruit" had many

friends, and is getting to be very well known throughout the fruit section of the state.

Yours very truly,

Hardie Manufacturing Company.

◆ ◆ ◆

Walla Walla, Washington, December 30, 1909.  
Better Fruit Publishing Company:

I am under obligations to you for the loan of a copy of "Better Fruit" under date of March, 1907. This copy, I think, is of incalculable value to any one contemplating the formation of a fruit growers' association, and as soon as we complete our by-laws will take pleasure in returning it to you, in the hope that it will help some one else to get started right, as it did us, and may it be many years before it wears out.

We would also like to publicly thank the Yakima Horticultural Association, the Milton Fruit Growers' Union, and the Moscow Packing & Cold Storage Company for the ready and willing manner they displayed in giving us valuable information to assist us in our work of organization.

May the good work go on.

Walla Walla Fruit and Vegetable Union.

◆ ◆ ◆

Northeastern Iowa Horticultural Society,  
Director's Office.

Waverly, Iowa, December 29, 1909.

Better Fruit Publishing Company:

I will enclose draft for one dollar to renew my subscription to "Better Fruit." Your plan of growing the best has given a great impetus to the business all over the country. It is the talk of all fruit men. There is a company forming here to improve a piece of land in your valley and I hope to see that famed place the coming year.

E. M. Reeves.

◆ ◆ ◆

Bolivar, New York, December 27, 1909.

Better Fruit Publishing Company:

I have taken "Better Fruit" for a year and wish to state that it is the most educational paper of its kind that I have ever read. I would be pleased to see some comments, through the columns of "Better Fruit" in reference to the Rogue River Valley and its prize-winning car of apples.

J. F. Care

◆ ◆ ◆

Louisiana, Missouri, December 20, 1909.

Better Fruit Publishing Company:

We appreciate the magazine, its value, and especially its standard. It stands for something, means something, it is the ideal. The development

## "ORWOOD" FRUIT SPRAY

A spray made entirely from wood oils and wood acids.

A spray that is a positive fungicide.

A spray that is positively fatal to all scale and aphids.

"Orwood" fruit spray is the most efficient winter spray for mosses, fungus, San Jose and other scale and all pests requiring winter spraying.

For summer spraying for fungus, scab, scale and all the forms of aphids, "Orwood" spray is unequalled. No fungus can germinate or live where it is used, and it is fatal to all the sap-sucking pests. It will not spot foliage or fruit.

For borers, paint the tree trunks with "Orwood" spray at its full strength.

Paint your poultry house with "Orwood" spray at its full strength and eradicate all insect pests.

If your dealer does not carry these articles write

## OREGON WOOD DISTILLING COMPANY

Works at Linnton, Oregon

418 Mohawk Building

PORTLAND, OREGON

*To Destroy Aphis and Plant Lice Without Injury to Foliage, Use*

## "BLACK LEAF" TOBACCO EXTRACT

## A FEW TESTIMONIALS FROM EXPERTS YOU PROBABLY KNOW

PROF. C. P. GILLETTE, of the Colorado Experiment Station: "We used 'Black Leaf' Extract to a considerable extent in our experiments in the vicinity of Grand Junction, Colorado, the past summer, and found it very satisfactory indeed, both for the destruction of woolly aphis and the green aphis of the apple tree. We also used it against the black peach aphis and the green peach aphis with equally good results. So far as I am able to learn, universal satisfaction was given wherever the decoction was used as strong as one part in seventy-five parts of water."

MR. LUTHER BURBANK, Santa Rosa, California: "I have found 'Black Leaf' Tobacco Extract convenient and satisfactory for destroying aphis and other insects."

PRICE: In 5-gallon jacket cans, 85 cents per gallon, f.o.b. Louisville, Kentucky, or in the Central states; the average Western price being 95 cents per gallon. In 1-gallon cans the price is \$1.00 each, f.o.b. Louisville, Kentucky, and at most points east of Omaha.

DILUTION: For spraying fruit trees, 1 gallon of "Black Leaf" is usually diluted with 70 gallons of water.

UNIFORM STRENGTH: Owing to the fact that "Black Leaf" is permitted by the United States Department of Agriculture to be used in official dipping of sheep and cattle, "Black Leaf" is marketed under a positive guarantee as to nicotine strength. This feature will doubtless be duly appreciated by fruit growers.

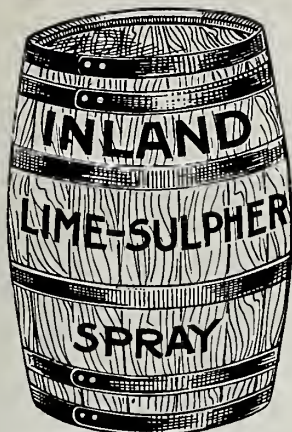
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(INCORPORATED)

LOUISVILLE, KENTUCKY





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 Creoseptic    Bluestone  
 Flume Cement    Arsenate of Soda    Lead Asetate

Our goods are made to comply with government requirements

SPOKANE, WASHINGTON

of the West is simply marvelous, and great as it is, it is most substantial. It is not a craze nor speculation, but it is an awakening—a reality. Only a few years ago good corn lands were selling here for ten to twenty dollars per acre. Now they are worth one hundred dollars per acre, and more. The same thing holds good as to the fruit lands, and more so.

Stark Brothers' Nursery & Orchards Company,  
 William P. Stark, Treasurer.

◆ ◆ ◆

Toppenish, Washington, December 29, 1909.  
*Better Fruit Publishing Company:*

We have an inquiry from one of our customers in Weherville, Wisconsin, asking for information about pruning fruit buds. We have told him that your December issue was about the best bit of information we knew of along this line. Will you please send him a sample copy of your December issue? We believe your doing so would result in another subscriber for you.

We wish to compliment you on your excellent magazine. It is truly a result-getter. We believe 50 per cent of the inquiries we get for stock mention "Better Fruit." It certainly is unsurpassed in its class.

Washington Nursery Company.

◆ ◆ ◆

Ashland, Oregon, December 23, 1909.

*Better Fruit Publishing Company:*

Enclosed please find my check for \$1.00 for "Better Fruit" for next year. Let me tell you

that I enjoy reading "Better Fruit" more than any other publication of its kind. I believe it will be one of the best mediums of community advertising that we have in the United States.

Yours very truly,

Ashland Chamber of Commerce,  
 H. O. Frohbach, Secretary.

◆ ◆ ◆

Paonia, Colorado, December 20, 1909.

*Better Fruit Publishing Company:*

A short, concise article in the next issue of "Better Fruit," by some one of experience, for the benefit of many readers of your valuable journal, giving the time, or number of times necessary, and the best spray, or sprays, to use in exterminating the twig borer on the peach, would be highly appreciated.

Yours truly,

F. J. Pearson.

◆ ◆ ◆

State of Oregon, Executive Department.

Salem, Oregon, December 14, 1909.

Mr. E. H. Shepard, Hood River, Oregon.

Dear Sir: I have this day appointed you as a member of the Country Life Commission for the State of Oregon, and trust that you will be able to serve the state by accepting the appointment. The country life movement, as you know, has been making rapid strides during the past few years, but only recently has it manifested any signs of activity here in the Northwest. At the recent apple growers' convention at Spokane, Wash-

ington, a committee was appointed to effect a permanent organization of the country life movement in the Northwest, and to secure from the governors of the Northwest states a joint commission on country life, without expense to the respective states, said commission to work in conjunction with and at the expense of the Chamber of Commerce of Spokane, Washington.

The permanent committee in charge of this Northwest movement consists of:

Ex-Senator R. C. McCrosky, Garfield, Washington; Honorable Paul Clagstone, Clagstone, Idaho; Mr. M. L. Dean, Missoula, Montana; General T. R. Tannatt, Farmington, Washington; Mr. J. L. Dumas, Dayton, Washington; Mr. C. E. Whistler, Medford, Oregon.

This permanent committee has deemed it advisable to have a separate commission appointed by the governor of each state, the members of said commissions also to compose the commission for the Northwest.

The Oregon commission, as appointed by me, consists of:

C. E. Whistler, Medford; Edwin Mays, Flanagan; E. H. Shepard, Hood River; Geo. A. Dorris, Eugene, and L. T. Reynolds, Salem.

I would respectfully suggest that a meeting be held at the earliest possible date and that plans be adopted for the permanent work of the commission.

Under separate cover I am sending you your commission.

Very truly yours,

F. W. Benson, Governor.

◆ ◆ ◆

SPRAY WITH THE OLD RELIABLE BRAND

## SWIFT'S ARSENATE OF LEAD

*Manufactured only by the*

MERRIMAC CHEMICAL CO., Boston, Massachusetts

WOODARD-CLARKE CO., Portland, Oregon

## Dependable Brand LIME-SULPHUR SOLUTION

Has been used by the leading fruit growers in the Willamette Valley and has worked wonders in eradicating San Jose scale, anthracnose and other pests which have infested our orchards.

Manufactured by the

### GIDEON STOLZ CO.

SALEM, OREGON

Write for our Spray Book and prices.

Wanted, immediately, responsible men and women of neat appearance to solicit subscriptions for the Overland Monthly. Pleasant, profitable work. Splendid commission. Valuable cash prizes. Permanent employment for hustlers. Give references. Address Circulation Manager, Overland Monthly, 773 Market Street, San Francisco, California.

## Hemingway's ARSENATE OF LEAD

A Perfect Product  
 Properly Packed  
 Honestly Priced

*Guaranteed to meet  
 the requirements of the various  
 State Agricultural Authorities*

For Coast Prices and Supplies  
 Address the Agents

**KERR, GIFFORD & CO.**  
 Portland, Oregon



## WANTS THE LAFEAN APPLE BILL DISCUSSED

Cedar Gap, Missouri, November 15, 1909.

To the Packer: I have noticed within the past few weeks in the trade papers, and in other papers, more or less discussion concerning the so-called Lafean apple bill now pending in Congress. I have always held that there is no more necessity for a national law to regulate the grading and packing of apples than there is for grading and packing oranges, lemons, peaches, strawberries or any other kind of fruits or vegetables, and for that reason, as a grower and shipper, I am opposed to it.

I believe that over 10 per cent of your readers in the rural districts, who are familiar with the provisions of this Lafcan bill, are opposed to it, and I would, therefore, suggest that you invite an expression of opinion by the growers of fruit in order that it may be more generally known how the "parties of the first part" stand on this measure before it comes up for congressional action. I hold that the grading and packing of apples should be left entirely to commercial organizations, such as the National League, International Apple Shippers' Association and Western Fruit Jobbers' Association, and that they, in fixing and establishing suitable rules and regulations, should consult and co-operate with the leading growing and shipping organizations of the country. Any rules and regulations established in that way would be just as binding in the enforcement of contracts in the courts of the country as laws inscribed on the statute books, and work out far better in the long run. A body of men asked to pass a law for the benefit of a certain industry should know something about that industry. Now, what do the members of Congress, except those, who, like the children of Israel, "were raised up under the apple tree," know about the apple business? A few of them may admire and appreciate a Ben Davis when they see and taste it, but I venture the assertion that 90 per cent of them don't know one apple from another. And yet they are asked to pass a law, by comparatively a few fastidious gentlemen in the trade, that is supposed to become a panacea for all the ills in the apple business. I believe it is generally admitted that the Lafcan bill in its present shape is impracticable and unconstitutional, and it is proposed to

amend it so as to relieve it of some of its objectionable features. In my humble opinion the best thing to do with the Lafcan apple bill is to kill it. I understand the Porter bill killed Porter.

Louis Erb.

## NEW WAY POWER SPRAYER

The New Way Power Sprayer, illustrated in this edition, is an outfit of different construction from the average power sprayers. It is a simple outfit, being constructed and assembled in one factory. The engine used is the New Way air-cooled, which is noted for its few parts and simplicity of construction. The engine, pump and jack are mounted on a solid cast-iron base, which gives the necessary strength required in power spraying. It produces a strong, rigid outfit and the absence of vibration increases the efficiency and tends to make a long-lived machine. This construction is used on no other power sprayer.

The direct geared jack applies the power from the engine to the pump in an entirely new method. It is back-geared in such a way as to produce additional power and the construction is such that with the additional leverage gained in the special jack construction enables the operator to maintain his high pressure with the minimum power.

This outfit is not a cheap outfit but one of strictly first quality throughout. It is mounted on a short turn platform, and the whole outfit being

Walter C. Deyo

Emery Deyo

### W. C. Deyo & Bro.

Box Apples  
a Specialty

859-861 Washington Street  
NEW YORK

Members of  
National League of Commission Merchants

enclosed prevents the deterioration of the engine and working parts from the spray.

Fruit of high quality follows the New Way quality sprayer.

# LILLY'S BEST SPRAY BOOK

MOST complete addition of its kind ever published on the Pacific Coast. Contains a Spray Calendar compiled by the State Experiment Station—Illustrations, Descriptions and Habits of Insects and Diseases peculiar to plants and fruits of the Pacific Coast—Spray Machinery, and how to use it—and a list of tested Sprays and Insecticides. It is a PRACTICAL GUIDE, and will be sent free to anyone interested.

The CHAS. H. LILLY CO., Seattle



## Insure Against Scale By Spraying

The best insurance against the San Jose Scale that you can take out for your orchards during the winter months is to spray them *now* while they are dormant. It is pretty well established that the scale gets in much of its deadly work during the winter, feeding on the stored up energy of the tree. The only sure way to avoid the chance that they are feeding on your trees during the cold weather is to spray now with some reliable material.

## SHERWIN-WILLIAMS LIME-SULFUR SOLUTION

means insurance for your orchards during the next three or four months. If you spray your fruit trees at this time you can be sure that they will go through the winter free from the attacks of the scale or any fungus diseases. Then when the spring arrives, they will be in a healthy condition and in all probability will need little if any further spraying for scale, unless their present condition is unusually bad.

Write our nearest office for particulars regarding prices and shipment.



### THE SHERWIN-WILLIAMS Co.

MANUFACTURERS HIGHEST GRADE INSECTICIDES AND FUNGICIDES

Factories: CLEVELAND, CHICAGO, NEWARK, MONTREAL, LONDON, ENG.

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## "LION BRAND" TRADE MARK Spraying Materials

### LION BRAND

Is the stamp of purity, strength and uniformity in insecticides

We make more insecticides than any other manufacturer in the United States, and Blanchard's "LION BRAND" is the standard on four continents.

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LION BRAND BORDEAUX MIXTURE  
Made by us for over twenty years, and guaranteed to contain nothing but the purest and most effective ingredients. One gallon to forty-nine of water.

### BLANCHARD'S

#### LION BRAND PARIS GREEN

We are the only independent makers of Paris Green. Lion Brand is sold in every state in the Union. There's a reason—Lion Brand is pure and strong, contains not a particle of filler or adulterant, nothing but purest Paris Green.

### BLANCHARD'S

LION BRAND ARSENATE OF LEAD  
Unequaled by any, anywhere, at any price. The Lion Brand is backed for purity and strength by our manufacturing reputation of nearly a quarter of a century.

### LION BRAND

Insecticides are on sale in every state. If you cannot get them handily, write directly to us and we will see that you do. Send for

### Blanchard's Spraying Booklet

It is free to any one who is interested and contains much invaluable information for the fruit grower and trucker.

The James A. Blanchard Co.

631 Hudson Terminal Building  
New York City, New York

### PORTLAND SEED CO.

Local Agents PORTLAND, OREGON



**Medford Spray Co.**

MEDFORD

**Oregon Spray Co.**

PORTLAND

**Hood River Spray Mfg. Co.**

HOOD RIVER

*These Factories Make and Distribute the Famous*

# NIAGARA Lime-Sulphur Spray

The leading fruit growers and fruit growers' associations of the Northwest use NIAGARA exclusively

## *There is a Reason Why*

NIAGARA is made under special process originated by ourselves. The only known process by which is made a permanent, clear and reliable solution of lime and sulphur of sufficient strength to meet all requirements

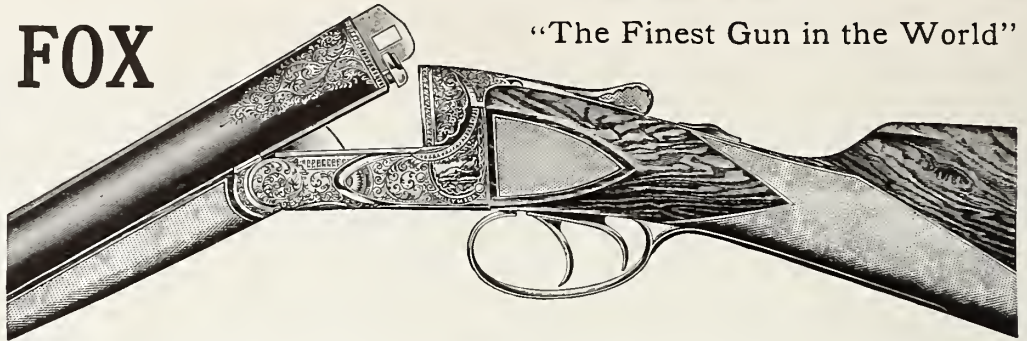
Write for Further Information

*Wherever Fruit Excels NIAGARA SPRAY is Used*



# THE A. H. FOX

The genuine Ansley H. Fox double barrel hammerless gun is the gun that has such few parts, hence its strength, as these parts are made much stronger where other gun parts are weak.



"The Finest Gun in the World"

All A. H. Fox Guns have Krupp fluid steel barrels. All A. H. Fox Guns are liberally guaranteed. Made in 12-gauge only, and in five grades. For sale by all progressive dealers and jobbers on the Pacific Coast and by

**THE A. H. FOX GUN CO.**

4682 North Eighteenth Street, Philadelphia, Pa.

Read Colonel Roosevelt's Comment on Fox Guns in October Scribner's

## MARKET YOUR FRUIT WITH ANY OF THESE BUYERS

### EASTERN BUYERS

Gibson Fruit Company, Chicago; H. Woods Company, Chicago; Steinhardt & Kelly, New York; E. P. Loomis & Co., New York; D. Crossley & Sons, New York; Rae & Hatfield, New York; Appel & Uffly, New Orleans; J. Grainger

& Co., Lincoln, Nebraska; O. C. Evans & Co., Kansas City, Missouri; G. M. H. Wagner & Sons, Chicago; R. G. Murdock & Co., Chicago; Sgobel & Day, New York; Robert T. Cochran Company, New York; Alfred W. Otis, Boston; Crutchfield & Woolfolk, Pittsburg; Ryan & Virden Company, Butte, Montana; Lindsay & Co., Helena, Great Falls and Billings, Montana; Lawrence Hensley Fruit Company, Denver; John H. Simon, Philadelphia; W. C. Deyo & Bros., New York; Palmer Company, Sioux City, Iowa; The B. Presley Com-

pany, St. Paul; The Lagomarcino-Grupe Company, Burlington, Davenport, Cedar Rapids, Ottumwa, Creston, Dubuque and Clinton, Iowa; F. S. Timberlake, St. Louis; The Lewis-Vidger-Loomis Company, Fargo, North Dakota; O. W. Butts, Omaha.

### WESTERN BUYERS

Davenport Bros., Pearson, Page & Co., McEwen & Koskey, Mark Levy, Bell & Co., Levy & Spiegl, W. B. Glafke & Co., Dryer, Bollam Company, Portland Brokerage Company, Portland, Oregon; Ryan & Newton, Spokane, Washington; Davidson Fruit Company, Hood River, Oregon; Richey & Gilbert, Toppenish, Washington; Gordon & Co., Seattle Fruit & Produce Auction Company, Ryan Brokerage Company, Seattle, Washington; Nelson Fruit Company, Paonia, Colorado.



## WANTED--A RIDER AGENT IN EACH TOWN

sample Latest Model "Ranger" bicycle furnished by us. Our agents everywhere are making money fast. Write for full particulars and special offer at once.

**NO MONEY REQUIRED** until you receive and approve of your bicycle. We ship to anyone, anywhere in the U. S. without a cent deposit in advance, *prepay freight*, and allow **TEN DAYS' FREE TRIAL** during which time you may ride the bicycle and put it to any test you wish. If you are then not perfectly satisfied or do not wish to keep the bicycle ship it back to us at our expense and you will not be out one cent.

**FACTORY PRICES** We furnish the highest grade bicycles it is possible to make at one small profit above actual factory cost. You save \$10 to \$25 middlemen's profits by buying direct of us and have the manufacturer's guarantee behind your bicycle. **DO NOT BUY** a bicycle or a pair of tires from anyone at any price until you receive our catalogues and learn our unheard of *factory prices* and remarkable special offers to rider agents.

**YOU WILL BE ASTONISHED** when you receive our beautiful catalogue and study our superb models at the *wonderfully low prices* we can make you this year. We sell the highest grade bicycles for less money than any other factory. We are satisfied with \$1.00 profit above factory cost.

**BICYCLE DEALERS**, you can sell our bicycles under your own name plate at double our prices. Orders filled the day received.

**SECOND HAND BICYCLES.** We do not regularly handle second hand bicycles, but usually have a number on hand taken in trade by our Chicago retail stores. These we clear out promptly at prices ranging from \$3 to \$8 or \$10. Descriptive bargain lists mailed free.

**COASTER-BRAKES**, single wheels, imported roller chains and pedals, parts, repairs and equipment of all kinds at half the usual retail prices.

**\$8.50 HEDGETHORN PUNCTURE-PROOF SELF-HEALING TIRES** A SAMPLE PAIR TO INTRODUCE, ONLY **\$4.80**

The regular retail price of these tires is \$8.50 per pair, but to introduce we will sell you a sample pair for \$4.80 cash with order (\$4.55).

### NO MORE TROUBLE FROM PUNCTURES

**NAILS, Tacks or Glass** will not let the air out. Sixty thousand pairs sold last year. Over two hundred thousand pairs now in use.

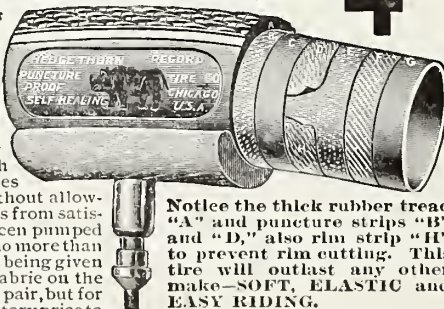
**DESCRIPTION:** Made in all sizes. It is lively and easy riding, very durable and lined inside with a special quality of rubber, which never becomes porous and which closes up small punctures without allowing the air to escape. We have hundreds of letters from satisfied customers stating that their tires have only been pumped up once or twice in a whole season. They weigh no more than an ordinary tire, the puncture resisting qualities being given by several layers of this, specially prepared fabric on the tread. The regular price of these tires is \$8.50 per pair, but for advertising purposes we are making a special factory price to the rider of only \$4.80 per pair. All orders shipped same day letter is received. We ship C. O. D. on approval. You do not pay a cent until you have examined and found them strictly as represented.

We will allow a cash discount of 5 per cent (thereby making the price \$4.55 per pair) if you send **FULL CASH WITH ORDER** and enclose this advertisement. You run no risk in sending us an order as the tires may be returned at OUR expense if for any reason they are not satisfactory on examination. We are perfectly reliable and money sent to us is as safe as in a bank. If you order a pair of these tires, you will find that they will ride easier, run faster, wear better, last longer and look finer than any tire you have ever used or seen at any price. We know that you will be so well pleased that when you want a bicycle you will give us your order. We want you to send us a trial order at once, hence this remarkable tire offer.

**IF YOU NEED TIRES** don't buy any kind at any price until you send for a pair of the special introductory price quoted above; or write for our big Tire and Sundry Catalogue which describes and quotes all makes and kinds of tires at about half the usual prices.

**DO NOT WAIT** but write us a postal today. **DO NOT THINK OF BUYING** a bicycle offers we are making. It only costs a postal to learn everything. Write it **NOW**.

**J. L. MEAD CYCLE COMPANY, CHICAGO, ILL.**



Notice the thick rubber tread "A" and puncture strips "B" and "D," also rim strip "H" to prevent rim cutting. This tire will outlast any other make--SOFT, ELASTIC and EASY RIDING.

Burbank, an irrigation project embracing about 13,000 acres of high grade fruit land on the Columbia River, at the mouth of the Snake, was formally opened the first of the year by the Burbank Land Company. A portion of this large district is already under cultivation and several well-developed ranches give evidence of what the land will do in growing fruit trees, vines, alfalfa, and other products common to the valley. However, the main body of the land has just come under water, and this year will witness its real development period. Water is taken from the Snake River by means of an immense pumping plant operated by water power at Five Mile Rapids, and is lifted 85 feet, covering some of the prettiest bench lands on the river. This plant is operated by turbines; cycloidal or rotary pumps are used. From an engineering standpoint the whole system, from cribbing and intake to the smaller laterals, is well worthy of study, since it is so modern and simple, yet effective. California has scores of pumping projects covering its highest-priced lands, but we in the Northwest are just entering this era of irrigation development, and the beginnings have been made on the Columbia River. Seattle capital, comprising some of the strongest men on the coast, are back of the enterprise. Main offices are at Burbank, but branch agencies have been established at all important centers in the West.

## WONDER OIL LAMP FREE

This is a Genuine offer to lamp users, made to introduce the **Wonder INCANDESCENT 100-CANDLE POWER Kerosene Oil Lamp** in every locality. Many times **BRIGHTER, CHEAPER** and **SAFER** than Gasoline, Electricity or ordinary lamps for lighting homes, offices, stores, halls and churches. We ask that you show it to your neighbors. If you accept the proposition we will send you, we will give you a lamp **FREE**. Send your name and name of nearest express office **UNITED FACTORIES CO.** Largest Lamp House in America 1072 FAC'DRY BLDG., KANSAS CITY, MO.

## FINE BABY CHICKS 8 CENTS EACH

Leghorns, Wyandottes, R. I. Reds, Minorcas, Langshans, Orpingtons, Plymouth Rocks, etc. All fine stock. Partly grown chicks, 30 cents each. Eggs for hatching, \$4.00 per 100. We guarantee safe arrival anywhere. Booklet free.

CULVER POULTRY FARM

121 Broadway Benson, Nebraska, U. S. A.



## Salem Tile Factory



### GOLD MEDAL

Highest Award on Tile at  
Lewis & Clark Exposition

Tile from 3 to 12 inch

Order carload lots, or for further particulars write for booklet or call on or address

**J. E. MURPHY**

Foregrounds Post Office, Oregon

## THINGS WE ARE AGENTS FOR

KNOX HATS

ALFRED BENJAMIN & CO.'S  
CLOTHING

DR. JAEGER UNDERWEAR

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UNDERWEAR

DENT'S and FOWNES' GLOVES

Buffum & Pendleton

311 Morrison St., Portland, Oregon

## The PARIS FAIR

Hood River's Largest and Best Store

## DRY GOODS SHOES, CLOTHING

We are offering some extra specials in our Clothing Department. Ask to see them

Try a pair of American Lady \$3 and \$3.50 Shoes, or American Gentleman \$3.50 and \$4

## NEW GROWERS' UNION WALLA WALLA, WASH.

At a recent meeting of the fruit and vegetable growers of Walla Walla and vicinity, an organization to be known as the Walla Walla Fruit and Vegetable Union, was perfected.

The plans adopted are in line with the methods so successfully worked out at Hood River, Yakima, Wenatchee, Milton and many other places throughout the Northwest.

This is considered by many as the first step towards commanding our proper place for the sale of our fruits and vegetables in the markets of the world.

The capital stock is divided into 1,000 shares at \$10 each.

The officers selected to hold office for the first six months are: President, W. A. Ritz; Vice President, E. C. Burlingame; Secretary and Treasurer, Geo. McGuire.

Seven trustees were elected as follows: J. W. Langdon, W. A. Ritz, E. C. Burlingame, Robert L. Moore, G. A. Duncan, G. A. McGuire, Albert Niblar.

E. J. Armstrong started the movement during the last season while he was stationed here buying fruit and produce for the Rasher-Kingman-Herrin Company, of Spokane. In the fall he was called to Troy, Idaho, to open and manage an apple packing house for the same firm, where he shipped out a good many cars of choice apples. Before leaving Walla Walla he gave some of the growers assurance that at the close of the season he would return and assist them to organize a co-operative association.

It is owing to the untiring efforts of Mr. Armstrong, ably assisted by Mr. Albert Niblar, that the Walla Walla Fruit and Vegetable Union is an established fact today.

Mr. Armstrong has been chosen as the union's first manager and will open an office on the first of the year.

Mr. E. P. Jensen, president of the Milton Fruit Growers' Union, was present, as well as Mr. J. N. Stone, vice president, and Manager H. D. Lamb, each of them giving the newly created union some good, sound advice that had been gained by experience.

Among many other things, the objects of this union are: To promote the interests of the producers of fruits, vegetables and other soil products, and the manufacture thereof, in the Walla Walla Valley by organizing and assisting in the organization of unions for such purposes; collecting and disseminating information, statistics and other data relating thereto; and to assist in improving the manner and methods of growing, cultivating, picking, packing and shipping fruits, vegetables and other produce, and to lend intelligent effort and service to the development, to its highest efficiency, of the fruit, vegetable and produce industry of the Walla Walla Valley, and to co-operate with other unions for the furtherance of such purposes.

## THE ROUTLEDGE NINETEEN TEN SEED CATALOGUE

We have just received a copy of the 1910 annual catalogue of the Routledge Seed & Floral Company, Portland, Oregon. It is certainly neat, up-to-date and brim full of valuable and useful information to any one interested in seeds, trees, plants, bulbs, roses, sprays and spray pumps, garden or poultry supplies, fertilizers, etc., etc. The book contains over 150 illustrations and the cover design is in two colors, showing the latest type of sweet peas on the front cover, and the New Holland peony-flowered dahlia on the back of it.

A request from any of our readers will bring a copy of this catalogue free. We would appreciate it if you would mention this paper when you write. See advertisement elsewhere in this issue.

## W. F. LARAWAY

DOCTOR OF OPHTHALMOLOGY

EYES  
TESTED



LENSES  
GROUND

Over 30 Years' Experience

Telescopes, Field Glasses

Magnifiers to examine scale

Hood River  
Oregon

and

Glenwood  
Iowa

## Cupid Flour

Has same standing in the Flour trade that Hood River Apples have in the Fruit trade.

MADE BY

## HOOD RIVER MILLING CO.

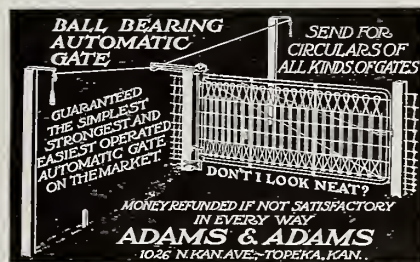
## S. E. Bartmess

UNDERTAKER AND  
LICENSED EMBALMER

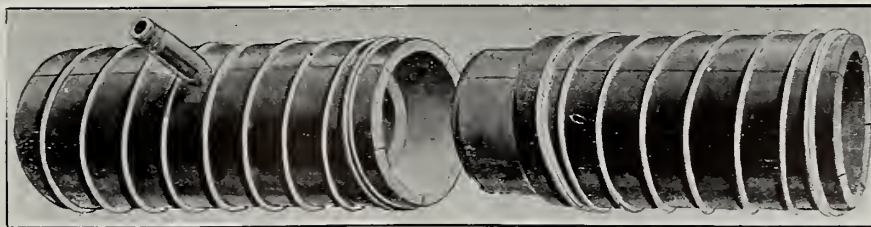
For Oregon and Washington

Furniture, Rugs, Carpets  
and Building Material

Hood River, Oregon



Estimates  
Furnished  
on  
Application



Special  
Attention Paid to  
Pipe for  
Irrigation  
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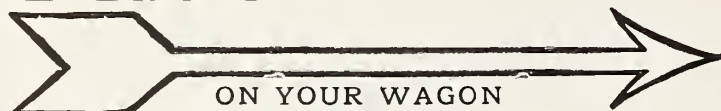
## PACIFIC COAST PIPE CO.

BALLARD STATION, SEATTLE, WASH.

Manufacturers of Continuous Stave and Machine Wire Wound Water Pipe from 2 inches to 14 feet in diameter  
Over 100 miles of our pipe was furnished for irrigation during 1909



THIS

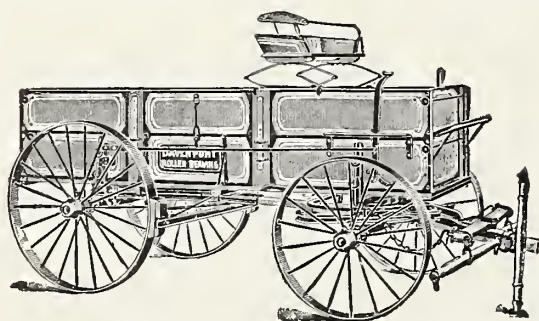


## Means 30 to 50 Per Cent Lighter Draft

For your team. It is the Davenport way. The roller bearings in the wheels save horseflesh. There's only one wagon of the kind. The wagon of little friction, little wear, light draft, and the wagon of long life is the

### DAVENPORT ROLLER-BEARING STEEL WAGON

You ought to have your horses in mind when you buy, for you use your wagon nearly every day in the year. Two horses on a Davenport are as good as three horses on any other wagon, and it has been proved over and over again.



#### THE AUTOMOBILE HUB

Its bearings are perfectly boxed. No chance for mud, water, sand or dust to get in. It is oiled through an automatically closing oil cup without removing wheels. An even distribution of weight in the Davenport bearing. With no need to cut and no undue strain anywhere, there's practically no wear-out to the cold rolled steel rollers.

#### STEEL WHEELS AND STEEL GEAR

Davenport wagon users don't have breakdowns, for it's steel all over. Nothing to dry apart, rot or work loose. Spokes are hot welded in hubs and tires, practically all one piece. Both gears are steel and are put together on the truss principle, like a bridge.

**DON'T BUY A WAGON THAT GOES TO RACK.** The price of the Davenport is nearly the same as a good wooden wagon, but think of the repair bills you save! And the annoyances you avoid! And think of the many, many hard pulls you save your horses. Write and let us mail you Catalog V free to tell you all about it.

**DAVENPORT WAGON CO., Davenport, Iowa**

# Rex Lime and Sulphur Solution

The original Rex Lime and Sulphur Solution has had at least fifteen imitators, but is still unequalled. Rex-sprayed fruit has won first prizes at every fruit show in the United States this past year.

When spraying, use only the **best** quality spray. Regardless of whether you have San Jose scale or not, every tree you own should be sprayed every year with **Rex Lime and Sulphur Solution**. Its **tonic effect** alone is worth ten times its cost. Makes better bark, better foliage, better fruit buds for the next season, and it covers a wider range of insect and fungus troubles than any other known spray. This fact is conceded everywhere.

## REX ARSENATE OF LEAD

Is a **perfected** quality, guaranteed to contain not less than 15 per cent arsenic oxide, and is almost wholly free from soluble arsenates. Guaranteed perfect quality, perfectly miscible, easily held in suspension. To protect our own reputation on our Rex Lime and Sulphur Solution we have waited three years to get a **perfected** quality **Rex Arsenate of Lead** before offering it for sale, while others have shipped out and sold all experimental batches. Your interests and ours are identical on this matter of quality. If you want **perfect** quality at reasonable prices, write us for prices. Every package or keg is sold on our positive guarantee.

### WRITE US FOR FREE SPRAYING BOOKLET

CALIFORNIA REX SPRAY COMPANY, Benicia, California

YAKIMA REX SPRAY COMPANY, North Yakima, Washington

WENATCHEE REX SPRAY COMPANY, Wenatchee, Washington

Also three factories at Omaha, Nebraska, Toledo, Ohio, and Rochester, New York



## A FINE APPLE SHOW

Chicago, December 11.—The Gibson Fruit Company has a superb apple show in their store. The fruit was exhibited in the Land & Irrigation Show at the Coliseum which closed last Saturday. The Hood River Union sold their fruit for eastern shipment to Steinhart & Kelly, New York City, and by permission of the latter, the Union exhibited a carload of the apples which the New York firm had bought. After the show was over, Steinhart & Kelly turned the car over to the Gibson Fruit Company to sell. The car consisted largely of Spitz and Newtowns. It is impossible to get together a finer collection of apples than those. Mr. Gibson says his own apple show is better than that in the Coliseum, and this fruit is selling well at satisfactory prices.

Apple shows are all the fashion. H. Woods Company and G. M. H. Wagner & Sons, the other leading box apple dealers of Chicago, have fine outlays in their stores. The boxes are arranged in terrace style and slope from near the ceiling to the floor with even tops. The fruit is tastefully arranged so that the contrasts in colors are well set off.

Apples lend themselves well to such displays on account of contrasting colors, but the above named merchants have arranged boxes of oranges and grapefruit, and barrels of Almeria and California grapes so as to bring out the full effects. A buyer cannot help being favorably impressed when he goes in a store where the goods are arranged in an orderly and attractive manner. It is a vast improvement over the old-style, helter-skelter, jumbled-up mess that people have come to expect in a fruit and produce store. The Pacific Coast people generally have long realized the advantages of tasteful display of their goods.

W. Atlee Burpee & Company, Philadelphia, Pennsylvania—Burpee's Annual for 1910. "The Plain Truth About the Best Seeds That Grow." This is the thirty-fourth "Annual" issued by this firm, and in its value to the planter it is fully up to any of its predecessors and easily takes a leading position among the best catalogues issued for the general buyer. The front cover shows a beautifully executed design in colors of their new Giant Fancy and Orchid-flowered Pansies; the back cover portrays in life-like colorings two popular muskmelons of the firm's own introductions, Burpee's Netted Gem and Emerald Gem. Color

plates in the catalogue show Burpee's new melon, the "Spicy" Cantaloupe, Burpee's New Giant-podded Pole Lima, Burpee's large, early sweet corn, Howling Mob, the new African golden-orange daisy (*Dimorphotheca Aurantiaca*), and an exquisite plate of two new Spencer sweet peas for 1910. Miriam Beaver and Marie Corelli. The subject matter of the catalogue is as interestingly written as ever, and the book is one which, in its entirety, will claim the absorbed attention of all who buy seeds.

The publishers of "Better Fruit" are making a clubbing offer that is very attractive to fruit growers. It includes the World's Work, The Review of Reviews, two of the best papers in America dealing on general, national and international topics for the man of the family. Everybody's Magazine, which is one of the best story magazines, and the Delicicator on fashions for the ladies, and "Better Fruit" for every one in a fruit grower's family. The original price of these papers is \$9.50. We can furnish them to you for \$6.00.



# P & O

## Walking Gang Plows

**P. & O. Three-Furrow Walking Gang Plow**



Made with Two or Three Bottoms. A Third Plow Attachment can be added to the Two Furrow Plow. The Three Furrow Plow can be cut down in size by removing the outside beam and bottom.

For downright hard work, when you need a plow than will stand hard usage, that will stand the pulling strain of eight or ten horses in any kind of soil without being damaged, the **P. & O. Walking Gang** beats them all. As it has no frame, there is nothing to get out of order. Provided with three levers, allowing a wide scope of adjustment. Square corners can be made without raising the bottoms out of the ground. No gang plow made can equal the **P. & O.** it turning sharp corners.

**A Riding Attachment** can be purchased with the plow, or at any time in the future. It is made to fit either size.



Showing the Riding Attachment.

Insist on getting **P. & O.** implements from your dealer. They are Backed by an Unqualified Guarantee. A Beautifully Illustrated Pamphlet, and a P. & O. Catalog, will be mailed Free. Write for Catalog No. **Q 155**

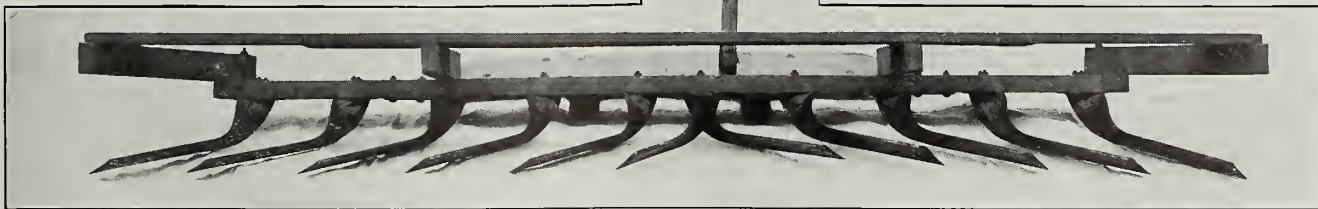
**PARLIN & ORENDORFF CO., CANTON, ILLINOIS**

# THE KIMBALL

*Is the Best*  
**Orchard Cultivator**  
*On Earth*

IS THE TESTIMONY OF:

E. H. Shepard, Editor "Better Fruit,"  
Hood River, Oregon  
A. P. Bateham, Manager East Hood  
River Fruit Co., Mosier, Oregon  
Dr. G. E. Sanders, Owner Roseland  
Orchards, The Dalles, Oregon  
And Thousands of Others



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## Johnston & Weber

SOLE DISTRIBUTORS

THE DALLES, OREGON



# IRRIGATED FRUIT AND ALFALFA LAND

*Of the Columbia River Basin*

## Umatilla County at Echo OREGON

THIS FAVORED LAND HAS MANY ADVANTAGES OVER OTHER DISTRICTS

Has the earliest springs and latest falls.

Has greatest powers to hold moisture.

Has more sunshine than Los Angeles, California

Has the most healthful climate.

Has no frost for seven months.

Has the best flavored fruits.

Has the deepest and richest heavy lava ash soil.

Has the biggest apples, with finest color and luster.

Has the best drainage.

Has the best constructed canals.

Has the smoothest surface.

Has the most reliable water supply.

Has more inducements to make a permanent home.

Has the best markets and transportation.

THIS beautiful and rich country is now attracting many people for its most wonderful productive-ness. It grows crops immediately when water is applied. Don't speculate; buy the very best for the least money and best terms. You will get results from the start in this district, because you can grow more boxes of apples, more tons of hay and alfalfa, more potatoes, more melons, more onions, more berries, more grapes, and all garden produce, to the acre than usually is produced in our already famous districts. Everything is in readiness to supply all the water necessary to produce the results. It is America's greatest paradise. In order to have a proper conception of this wonderful country it must be seen. It will astonish you if you give it an investigation. There is one reason only why these high class lands can be sold at such low prices, because its mammoth canal system of forty miles was so easy to build and construct, not being near as expensive to put water on each acre of land as is the case in most all of our famous projects; hence every acre can be sold at a great reduction, and this very land exceeds in quality, location and contour all other projects. This is the key to the situation. It is your opportunity—you should look this over before making a decision. We invite an investigation.

*Our new Booklet is just off the press; it has illustrated views;  
it will be mailed to you. Ask for it*

ADDRESS

### W. J. STAPISH

516 East Main Street

Walla Walla, Washington



# Better Farming

## A John Deere Book

—Just Out

### A Farmer Can Get It Free

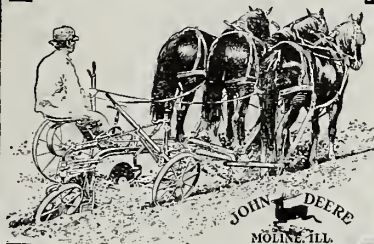
If interested in farming, get our FREE book called "BETTER FARMING." It tells all about—

Alfalfa	Making Hay
Dairying	Fighting Frost
Seed Wheat	Silos
Corn Crops	Cultivation
Stock Feeding	Cotton Crops
Art of Plowing	Soil Fertility
Boll Weevil	Gasoline Engines
Controlling Weeds	Adjusting Plows

### Hired Help Costs Big Money

Your land is high priced and hired help expensive. There is only one way to make big money—use implements that cut down the cost of your crops. Isn't it true that when you break something on a plow it is nearly always a cast part? Wherever strain comes on a John Deere Plow there you will find steel—tool steel. Take any plow that has had hard work for five years, put it along side of a John Deere which has been in service that long—and see the difference. Then there is no point to cover up poor material. You can see the wear and the defects. The John Deere will be solid, staunch and ready for the hardest job. Then you begin to know that quality counts.

You can take pride in owning a John Deere—the standard plow of the world for two generations.



We will send you the 80-page, illustrated book free if you write and ask for

Package No. 46

Mention the package number sure, then you will get exactly the right stuff.

**DEERE & COMPANY, MOLINE, ILL.**

## MEANING OF SUCCESS IN DRY LAND FARMING

THE Farmers' Institute director says: The "old timer" says dry land farming is a failure except in occasional good years. This is chiefly because land greed has led men to spread over more territory than they can till well. I know a farmer in Montana who was nearly "all in" so far as credit and expectation of paying for his land went. He was getting twelve to fifteen bushels of wheat per acre, and not quite paying expenses on 2,000 acres of bench land. Three years ago he didn't know whether his creditors were going to let him go on or sell him out. He got a Campbell's Soil Culture Manual, studied it, bought more horses and harrows, and began to follow its teachings. In 1907 he got fifty bushels of winter wheat per acre on 700 acres, and in 1908 he got forty-six bushels per acre on 800 acres, and made \$14,000 above expenses.

Four harrowings last May and June increased his crop sixteen bushels per acre over that of his neighbor, who followed Campbell up to that point, but hadn't the nerve to drag his young grain. He attributed his success to thoroughness, in conservation of moisture, preparation of seed bed, and harrowing his grain in the spring.

The Old Method: Plowing to a depth of two or three inches, leaving the ground to dry out or grow to weeds, careless seeding and neglect do not merit success, nor is success likely with that style of farming on unirrigated lands.

Dry Land Farming, in order to succeed, means better farming. Where the work is done intelligently and diligently and at the right time, there are too many shining examples of splendid harvests on Montana dry lands to warrant the opinion that they cannot be successfully farmed. To make these lands produce good crops observe these points:

1. Water is essential.
  2. You can store water by tillage.
  3. Seven to ten inches more water is found beneath a surface which has been summer tilled than beneath an untilled surface adjoining.
  4. Plow five or six inches deep.
  6. Harrow immediately after plowing, before the furrows dry out.
  7. Keep a dust mulch by harrowing during the summer. Don't let weeds grow and waste the soil water.
  8. Harrow the grain in the spring.
- Watch for the date of the Farmers' Institute. A man will be present to speak on dry land farming. Montana farmers' bulletin No. 1 will be distributed to farmers at the institute. It is the most complete dry farming publication in print. For further information address,

F. S. Cooley, Superintendent.

## FRUIT TREES

WE STILL HAVE FOR SALE

- 5,000 1-year Winesap
  - 800 1-year Stayman Winesap
  - 500 1-year Winter Banana
  - 200 1-year Rome Beauty
  - 500 1 and 2-year Newtowns
  - 100 1-year Jefferies
  - 100 1-year Siberian Crab
  - 500 1-year Bing Cherries
  - 500 1-year Lambert Cherries
  - 1,500 1-year Bartlett Pears
  - 1,000 Anjou Pears.
  - 1,000 2-year Grapes of leading varieties
  - 100 2-year Monthly Roses of leading varieties
  - 30,000 Whole Root Apple Grafts
- This stock is all first-class. Prices reasonable. If interested write for prices

### THE CASHMERE NURSERIES

G. A. Loudonback  
CASHMERE, WASHINGTON  
Located in the Wenatchee Valley

# 3 Points

## FRUIT TREES

Order now the trees you want while the assortment is complete. Don't delay.

# True to Name

Our stock comprises all profitable commercial varieties of trees and vines—and they are the best that care can produce.

# Well Rooted

WRITE US NOW

Catalogue and Planter's Guide Free

## THE SILVABERGTHOLDT CO.

146 Orchard Street  
Newcastle, California

# Very Hardy

C. M. SHAW

ROY F. DEAN

## Dean & Shaw

Electrical Supplies and Fixtures  
Scientific Electrical Construction

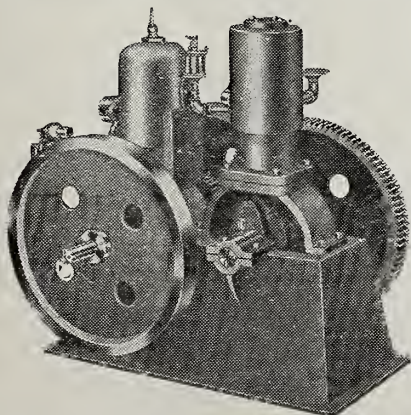
Home Phone 3 Hood River, Oregon

## MARVIN'S GASOLINE AIR COMPRESSOR SPRAYER

To be used in connection with steel tank instead of gas. Cost of operation about fifty cents per day for gasoline and oil. Gasoline engine and air compressor on same base; weight only about 350 pounds

CATALOG ON APPLICATION

E. P. Marvin, Jr. Lockport, N. Y.





## HEADQUARTERS FOR CENTURY SPRAY PUMPS

Hose, Nozzles, First-  
class Plumbing Supplies

**C. F. SUMNER**

Successor to Norton & Smith

HOOD RIVER, OREGON

## HOME MANUFACTURED SPRAY OUTFIT SUCCESS

Among the spray outfits which came out of the 1909 season with all flags flying was the Mitchell power sprayer, which is built in the Northwest by one of the largest jobbers of spray pumps and spray apparatus on the Coast, Mitchell, Lewis & Staver Company, of Portland, Spokane and Boise. Although this outfit is reported to have given the best of satisfaction during the 1909 season, the manufacturers inform us that the 1910 spray outfit will be greatly improved. They report the adoption of a heavier pump of larger capacity, capable of maintaining high pressure with minimum power. The principle of this outfit is simple. It is composed of a round-bottom mixture tank, a perfect agitator, a simple two-horsepower Stover engine, which is cooled by means of a low-covered cooling tank, the water being forced through the engine by a circulating pump, mounted on a low down short-turn gooseneck truck. The outfit is very compact and we believe our readers who are interested in spray outfits will make no mistake by investigating the 1910 Mitchell.

## Make Your Arid Land Profitable

BY USING A

## COLUMBIA Hydraulic Ram

Will pump water thirty feet high  
for every foot of fall.

Made to accommodate all sizes of  
drive pipe, from one inch to six  
inches.

Write for our Bulletin R 6.

(Please mention "Better Fruit.")

**Columbia Block &  
Ram Company**

PORTLAND, OREGON

## THE WATERLOO GASOLINE ENGINE *Is the Steady Service Engine*

Eliminates usual gasoline engine troubles. Write for complete descriptive catalogue, which explains in detail the many superior features

2-horsepower - - \$ 90.00

4-horsepower - - 160.00

f. o. b. Portland, Oregon

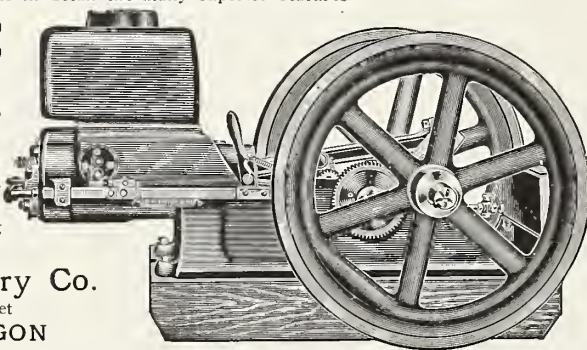
Write us about your machinery  
and pump requirements

Pipe Pumps Windmills  
Gasoline Engines Launches  
Well Drilling Outfits  
Hydraulic Rams Fittings Belting  
Saw Mill Machinery

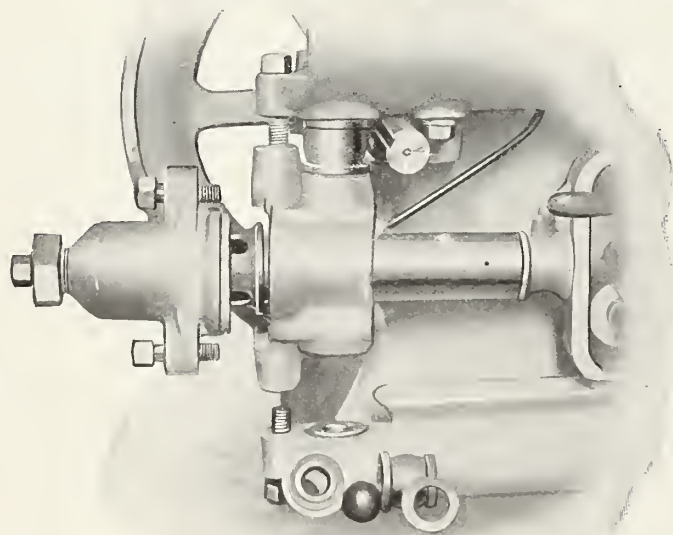
**Reierson Machinery Co.**

182-4-6 Morrison Street

PORTLAND, OREGON



## HERE IT IS! THE FRUITGROWER'S FRIEND



### DEASSEMBLED PUMP CYLINDER AND VALVE

This illustration shows the new and novel plan of construction of the  
IMPROVED "FRIEND" POWER SPRAYER

Note the quick detachable valves and valve seats; quick removable and  
adjustable packing. No pipes or plumbing.

Read our ad. in the January issue.

Write us for description of our CALIFORNIA Model, the great \$350.00  
Sprayer. We make them all sizes and capacities. Write us explicitly  
relative to your requirements. We have the GOODS. It's now up to you.

**FRIEND MFG. CO.**

Niagara Co. Gasport, New York

Manufacturers of the world's best Hand and Power Spraying Outfits, and the  
celebrated "FRIEND" Nozzles, angle and regular.

## Sherman, Clay & Co.

Sixth and Morrison, Opposite Post Office  
PORTLAND, OREGON

## If You Are Not a Pianist You Need An INNER-PLAYER



If you cannot play the ordinary piano, it is not neces-  
sary for you to sacrifice a single advantage enjoyed by  
those who have acquired skill in manual playing.

The Inner-Player mechanism takes the place of  
trained fingers and is absolutely under your control;  
you are at once as completely master of the instrument  
as you would be of an ordinary piano after years of  
study.

What could make a more pleasing gift than a piano  
which every member of the family can play?

A postal card will bring by return mail our free  
"Booklet B."



# The Mechanical Perfection of the GOULD SPRAY PUMPS

MAKES THOROUGH SPRAYING EASY—GIVES AND MAINTAINS THE HIGH PRESSURE SO NECESSARY TO GOOD WORK

## INFORMATION REQUEST

Fill this out, mail to Portland Seed Company, and receive our quotations on suitable spraying outfits.

Size of your orchard.....acres.

Location .....

Age of Trees.....

Varieties .....

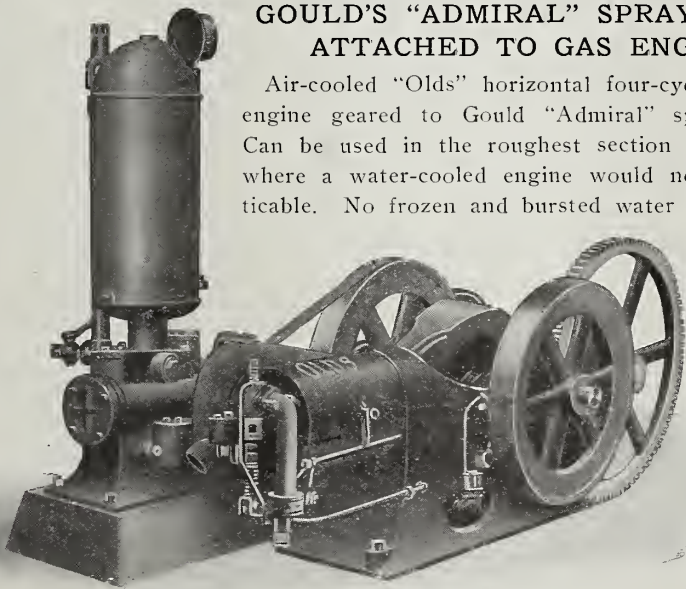
Name .....

Address .....

We will gladly advise you as to the proper outfit for your requirements. This information may save you much unnecessary expense and costs you nothing. Fill out the blank and send it to us today. You will receive a prompt reply, valuable information, and an estimate of outfit considered necessary.

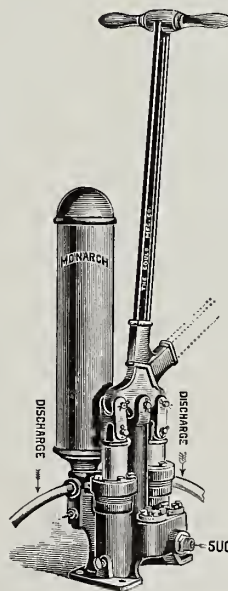
## GOULD'S "ADMIRAL" SPRAY PUMP ATTACHED TO GAS ENGINE

Air-cooled "Olds" horizontal four-cycle gasoline engine geared to Gould "Admiral" spray pump. Can be used in the roughest section on sidehills where a water-cooled engine would not be practicable. No frozen and bursted water jackets.



## GOULD'S MONARCH

Lightest running hand or power pump known. Mechanically perfect in its action. All working parts bronze—no corrosion. Vertical cylinders—no wear from grit or sediment. A boy can maintain 150 pounds continual pressure. Powerful lever. Adjustable socket, allowing change of position.



## "POMONA" BARREL PUMP

HAS  
GREAT POWER  
AND  
CAPACITY  
AND IS THE BEST  
ORCHARD  
SPRAY PUMP  
FOR MOUNTING  
IN A BARREL.  
NO LEATHER  
PACKINGS  
ALL WORKING  
PARTS BRONZE  
VALVES EASILY  
ACCESSIBLE  
LEVER LONG AND  
POWERFUL



# Portland Seed Co.

PORTLAND, OREGON

AGENTS "GERMAN KALI WORKS" POT-  
ASH FERTILIZER FOR ORCHARDS  
SEND FOR FREE BOOKLET



## THE WEST IS JUST BEGINNING TO GROW

Louisiana, Missouri, November 12, 1909.

Better Fruit Publishing Company:

"Better Fruit"—A glorious cover page, a work of art; generous advertisements, invaluable as a directory; educational, instructive. All this means something—brains, the know how.

Throughout the East, and in the great cities particularly, it is said the business men are wild on fruit growing in the far West—maybe wild is hardly the word. It strikes us that the people are just awakening from their dreams, a realization as to the untold possibilities of the West. The West must and will grow the fruit, the Central West the corn, the stock. Overproduction need not be a bugbear.

Mr. S. C. McMullen of Grand Junction said he and other wise ones sold out their land and orchards on the first wave and thought they were doing the tenderfoots, who builded wiser than the experienced ones could have dreamed of, and then added McMullen: "We sold out at just the beginning of the boom."

Some place the other year out West we were telling the real estate men that the one thing that surprised us most of all was their extreme modesty in telling of the wondrous possibilities. We said it in all seriousness, because in many places they did not fully appreciate their advantages. Maybe we should not advertise the fact, but the high class fruit of the future must necessarily be grown West. It is a condition, not a theory. One of our near neighbors returned recently from the Wenatchee country and says he will grow just as good apples. There on this same farm we have seen as fine Rome Beauty, etc., even finer, than are now coming from Wenatchee, but our people must awaken, and that is the chief reason our Missouri State Board of Horticulture sent representatives to study the conditions of the West.

Your November number should have a circulation of a million and more; the people throughout the country and abroad as well should have this most valuable publication; your commercial clubs and all such organizations should broadcast "Bet-

ter Fruit" because it is far better than anything else they can send out.

Never before was the "Call of the West" so fascinating, and incidentally we might add that orchardists, more particularly consumers, are wild for Delicious and King David, creating a sensation everywhere. Our propagation on these two sorts will be pushed to the limit. How many do you suppose that will be?

Kindly note National Nurseryman, Rochester, New York, editor, Professor John Craig, in discussing the Elberta says: "Give us an early Elberta and make it a little better in quality." In the Stark Early Elberta we have the variety, and for more about the record please note the Stark Year Book, ready about January 1. Something different from the usual stereotyped, threadbare catalogue, which we believe will appeal to the artistic taste of the editor of "Better Fruit."

With kindest regards and wishing you the great success you so richly deserve, we are,

Yours sincerely,

W. P. Stark.



## THE "New-Way" POWER SPRAYER

Always ready for any work in any climate  
Easily detached



### "NEW WAY" AIR COOLED ENGINE

Gasoline, Distillate or Alcohol Fuel

Carries high pressure without the usual vibration or strain, and is the most practical, durable and economical machine ever built for spraying. Use your own running gear if you prefer. Write us today for Spray Catalogue No. S-8

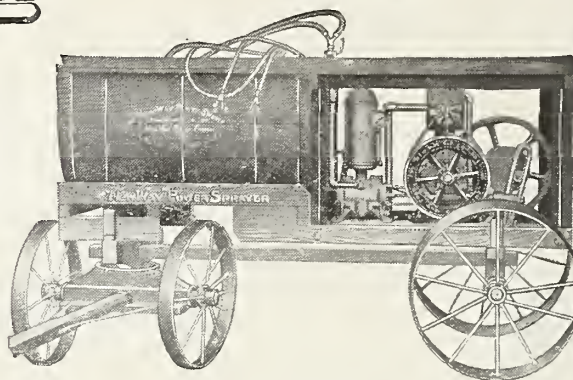


**John Deere Plow Co.**

Portland, Oregon

**GILBERT & VAUGHAN**

Local Agents Hood River, Oregon

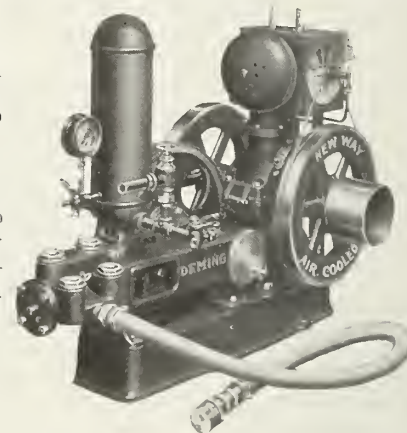


Fruits of High  
Quality  
Follow this  
Quality  
Sprayer



## Top Prices for the Man Who Sprays With a "Deming"

Commission men everywhere are nowadays demanding **sprayed** fruit. The man who sprays can command a good figure; but the "top-notch" prices go to the owner and user of the "Deming"—for it's the most accurate and reliable of all spraying outfits. In the West as well as in every great fruit-growing center of America



### DEMING SPRAY PUMPS

Are keeping up their splendid records of good work and big, profitable returns—the kind of returns that have made Western apples the wonder of the world. If you want to know more about Deming outfits write to your state entomologist, who in all probability uses one himself; or ask your neighbor, who values his "Deming" as a treasured possession; then, after you see how enthusiastic **they** are, call at our nearest store and inspect them for yourself. More than twenty styles, hand and power.

#### DEMING NOZZLES ALWAYS IN THE LEAD

We make a special point of our nozzles, particularly the "Bordeaux" and "Demorel." The nozzle is always the "business end" of the outfit, and Deming Nozzles are made to satisfy the demands of the most critical growers. Order Deming Spray Pumps and Nozzles from your hardware or implement dealer, or direct from us if he doesn't handle them.

Our 1910 Spray Book will interest you. It's free—write.

**CRANE CO., Pacific Coast Agents**

PORTLAND SEATTLE SPOKANE TACOMA SAN FRANCISCO

THE DEMING COMPANY, 743 Depot Street, Salem, Ohio

Manufacturers of Spray Pumps and Nozzles, Power Pumps for irrigation and water supply, Hydraulic Rams, Hand and Windmill Pumps, etc.

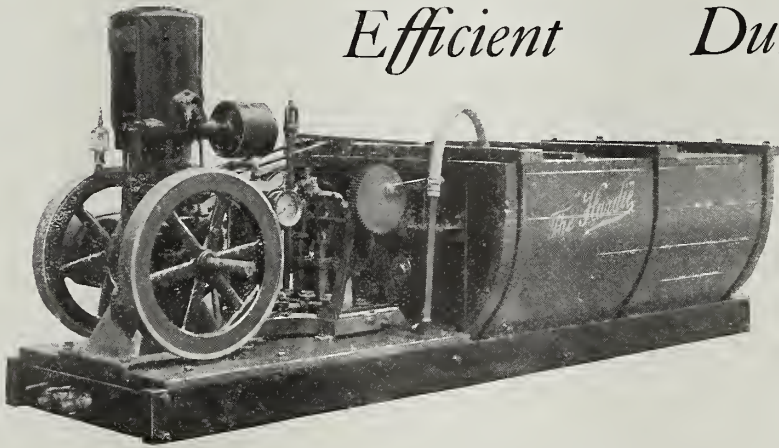


# The Hardie Triplex Sprayer

*Efficient*

*Durable*

*Simple*



NOTHING  
TO WATCH  
BUT THE  
SPRAY

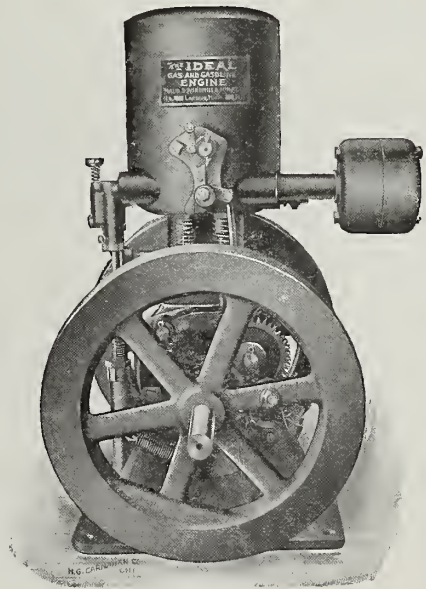
OUR 1910 model Triplex will suit you; will suit you in efficiency, in simplicity, in pressure, in capacity and in general makeup. Our TRIPLEX PUMP gives you an even continuous pressure, be it high or low, as desired. Our Rotary Agitator gives thorough agitation and our Ideal Engine sufficient power.

*On all Hardie Power Sprayers we use Our*

## IDEAL ENGINE

WE use this engine as it is compactly built, has no extra water or gasoline tank and is built for hard continuous service. The cooling system is the most practical of any.

**No Tank   No Fan   No Freezing**



Our complete catalogue giving prices of twenty different styles of hand and power sprayers, engines, nozzles, etc., is yours for the asking

## The Hardie Mfg. Co.

Hudson, Michigan

22 Front Street, Portland, Oregon



# CALIFORNIA

## *Calls You*

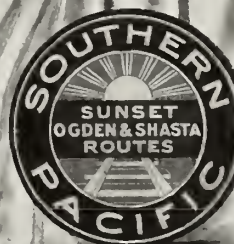
VIA

**THE ROAD OF  
A THOUSAND  
WONDERS**



**PORTLAND to LOS ANGELES  
AND RETURN, \$55.00**

Final return limit six months. Stop-overs in each direction. Corresponding low rates from all O. R. & N. and S. P. points. For interesting and attractive literature on any of the famous California winter resorts, call on any O. R. & N. or S. P. agent, or write to Wm. McMurray, General Passenger Agent, Portland, Oregon





# The White Salmon Valley

**YOU HAVE BEEN TOLD** so many times that the White Salmon Valley is opposite Hood River Valley; that it raises just as good apples and strawberries as Hood River; that it is in every way a duplicate of Hood River; that it has been held back in development for lack of transportation until in March, 1908, when the Spokane, Portland and Seattle Railroad gave the Valley its first real transportation; that we think you would like to know some more of the facts. Well, here they are:

There are more than twelve townships, or 276,480 acres, included in this section, over half of which is the choicest fruit land in the world. The remainder consists of timber, dairy and grazing lands. There are over 5,000 acres planted to orchard now; there will be over 2,500 acres planted in 1910. There has been over 20,000 acres of land changed hands in the last twelve months. This will be repeated in the next twelve. That means over 500 new land owners in the last year, which includes twenty-five of St. Paul's and Minneapolis' leading business men. There are at the present time over fifty college men who have purchased land in the last eighteen months. That number will more than double in the next twelve. In ten years' time we will have 10,000 acres of bearing orchard, which will mean that the revenue from our apples will be about \$1,000,000. There will be a railroad up the White Salmon River, penetrating the heart of this district, within less than two years' time. An electric light plant installed in June, 1909, has over seven miles of line in operation. The telephone company has grown from fifty to three hundred 'phones in four years. Everything else is growing in proportion.

If there is any doubt in your mind about there being something doing in this section, pack your grip and come out and investigate. There are thousands of acres left, waiting for some one to come and help improve them. We have over a thousand acres, ranging from five to five hundred-acre tracts.

## The Following are a Few of Our Bargains

### *Write Us for Complete List*

No. 208. 40 acres, 7 miles from town; 3 acres of 3 and 4-year-old trees of Spitzenbergs and Newtowns; 2 acres more cleared, 10 acres slashed. In a rapidly developing district adjoining Minneapolis colony. Price \$4,000; terms.

No. 209. 160 acres, partly improved, can be had for \$7,000, if taken before March 1.

No. 210. 100 acres raw land, 60 acres easily cleared, all good and tillable. Price \$40 per acre.

No. 211. 40 acres adjoining the White Salmon River, 6 miles from Underwood; all tillable. Price \$100 per acre.

No. 212. 40 acres one-half miles from No. 211; 5 acres cleared. Can be had for \$4,000 before March 1.

No. 213. 160 acres of the best orchard land in the White Salmon Valley. A snap at \$10,000.

No. 214. 40 acres 4 miles from town; 35 acres in trees 2 years old; two houses and other buildings for two families; plenty of water; location in plain view of Mount Adams and Mount Hood. Choicest fruit land in the valley. Price \$500 per acre.

No. 215. 360 acres in one tract. A good development proposition; 60 acres cleared. Write us about this for information.

*We Handle Nothing but First Class Orchard Land*

*See Us Before You Buy*

# THE WHITE SALMON LAND CO.

WHITE SALMON, WASHINGTON



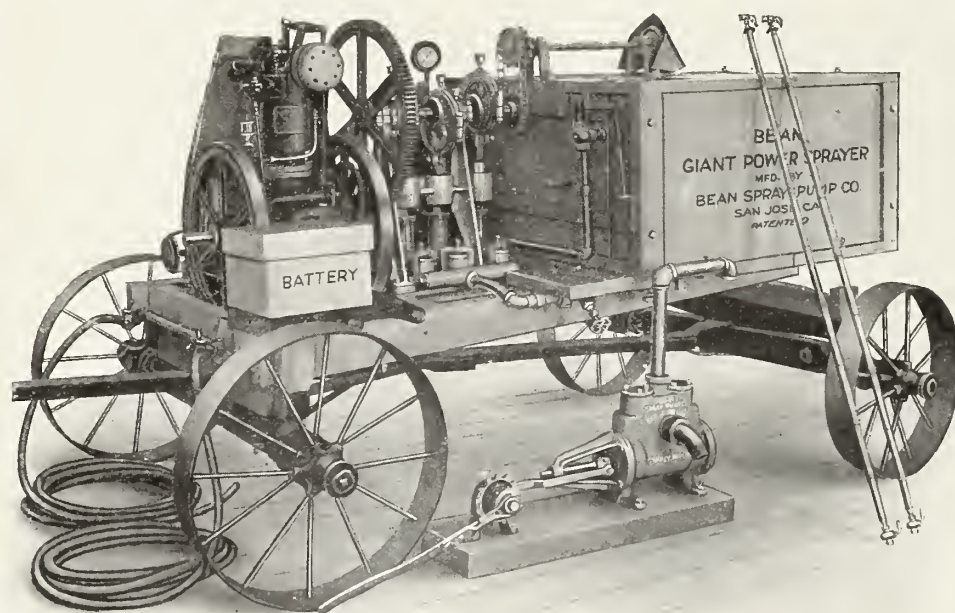
# THE BEAN THE BEST

To the owner of the Bean Power Sprayer or a Bean Magic Pump it is unnecessary to make the above assertion, as they know it to be true from practical experience, but to the prospective buyer we would like to say that when we say the **BEAN** is the **BEST** we mean it in every sense of the word and can back up our statement by hundreds of satisfied customers. We are pioneers in the spray pump business and the only firm manufacturing a full line of these goods in the United States, from a spray nozzle to a power sprayer. Our Giant Sprayer is the largest capacity power sprayer on the market today, and has not only capacity, but is built to give years of actual service in an orchard. This machine will deliver twelve gallons per minute at 200 pounds pressure.

Our Challenge Sprayer is equally good, but a lighter machine than the Giant. It has a pumping capacity of six gallons per minute under 200 pounds pressure.

The orchardist of today demands high pressure in all of his spraying, and our Magic Pumps Nos. 9 and 10 are the only hand pumps on the market with which one man can maintain a pressure up to 150 pounds and supply two lines of hose without killing the man who does the pumping. Our hand pumps are fully described in our catalogue No. 24 and our power sprayers in catalogue No. 22, either or both of which we will gladly forward you upon request.

We are represented by the following agencies throughout the Northwest, any of whom will be glad to supply you with anything in our line. If you are in a district where we have no agency we will be glad to supply you direct.



## OREGON

Ashland, Emil Peil  
Medford, Nicholson Hardware Co.  
Central Point, Freeman & Wiley  
Grants Pass, Cramer Bros.  
Roseburg, F. H. Churchill  
Oakland, Stearns & Chenoweth  
Yoncalla, Stearns & Chenoweth  
Cottage Grove, Griffin & Veach  
Eugene, F. M. Chambers & Bros.  
Halsey, Cross & White  
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Albany, Ohling & Taylor  
Salem, Wade-Pierce Co.  
Corvallis, R. M. Wade Co.  
Independence, R. M. Wade Co.  
McMinnville, R. M. Wade Co.  
Dallas, Cramer Bros.  
Portland, Polson Implement Co.  
Oregon City, Frank Buseh  
Hood River, Gilbert & Vaughan  
Mosier, F. A. Stewart  
The Dalles, Maier-Schanno  
La Grande, Island City M. & M. Co.  
Ontario, Eastern Oregon Hardware Co.  
Nyssa, Eastern Oregon Hardware Co.

## WASHINGTON

Vancouver, John Sparks  
White Salmon, Simpson & McClintock  
Chehalis, Harms & Lawrence  
Centralia, Frank T. McNitt & Son  
Tacoma, Poole's Seed Store  
Puyallup, F. A. Stuart  
Ellensburg, Ramsey Hardware Co.  
North Yakima, Yakima Hdw. Co.  
Toppenish, Richey & Gilbert  
Zillah, Follansbee Bros.  
Sunnyside, Amundson Hdw. Co.  
Prosser, Davies-Osterlie Hdw. Co.  
Walla Walla, John Smith Co.  
Waitsburg, John Smith Co.  
Dayton, H. J. Torrance  
Pullman, Floyd L. Hamilton  
Moscow, Butterfield-Elder Co.  
Colfax, Colfax Implement Co.

Palouse, Palouse Hdw. & Imp. Co.  
Farmington, G. G. Paddock  
Oakesdale, E. L. Scott  
Spokane, Polson Implement Co.  
Kettle Falls, J. C. Wilson & Co.  
Wenatchee, Wells & Morris  
Everett, Pacific Hardware Co.  
Bellingham, Northwest Hdw. Co.  
Seattle, Polson Implement Co.

## IDAHO

Weiser, Hermann Haas Hardware & Implement Co.  
Payette, Geisler Bros. and Moss  
Mercantile Co.  
New Plymouth, New Plymouth Hardware Co.  
Parma, H. C. Baldrige  
Emmett, D. A. Hawkins  
Caldwell, Ballantyne Hdw. Co.  
Nampa, Central Implement Co.

Boise, Eastman-Teller Hdw. Co.  
Blackfoot, Idaho Hardware Co.

## UTAH

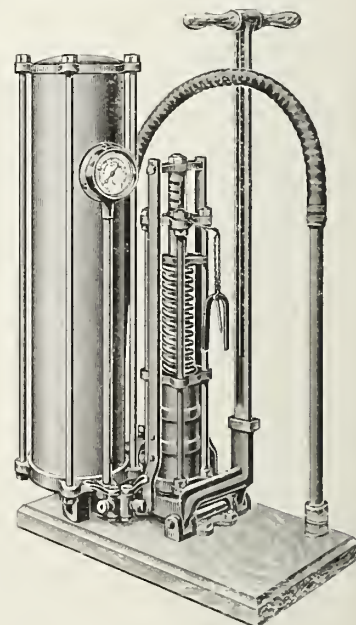
Provo, W. M. Roylance Co.  
Salt Lake City, Utah Implement-Vehiele Co.  
Brigham, Christensen-Knudsen  
Green River, Merrill-Bolinger Lumber Co.  
Logan, Sidney Stevens Imp. Co.  
Ogden, Sidney Stevens Imp. Co.  
Moab, John Peterson

## MONTANA

Missoula, Nelson & Cannon Co.

## BRITISH COLUMBIA

Vancouver, Walworth-Ralston Co.  
Vernon, Vernon Hardware Co.



# BEAN SPRAY PUMP CO.

"EVERYTHING FOR SPRAYING"

213 WEST JULIAN STREET

SAN JOSE, CALIFORNIA



# Steinhardt & Kelly

101 Park Place, New York

*The largest and most extensive fruit concern in the world  
operating in all the fruit growing sections of the civilized globe*

## Exclusive Purveyors of High Class Fruits

STEINHARDT & KELLY HANDLE MORE

### BOX APPLES

THAN ANY OTHER CONCERN IN THE COUNTRY

and was the first fruit house to extensively introduce the Northwestern product to the consumers of the East. With able representation in all the leading markets STEINHARDT & KELLY are enabled to handle the entire crops of the most extensive districts with utmost ease and celerity

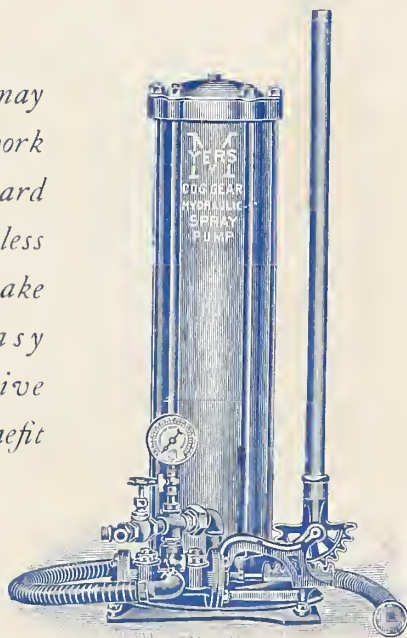
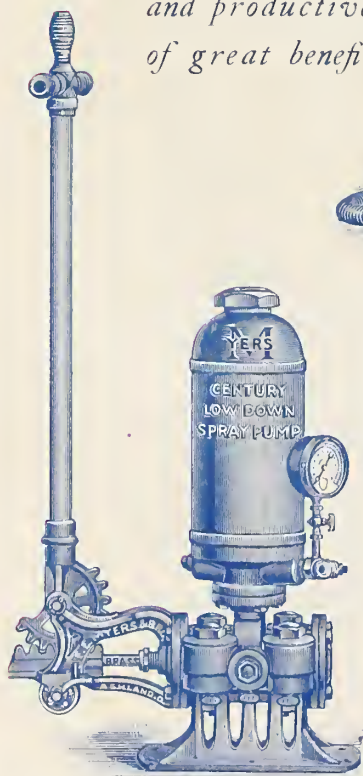
CORRESPONDENCE WITH ASSOCIATIONS, UNIONS AND  
INDIVIDUAL GROWERS WILL BE GIVEN PERSONAL ATTENTION



# As Ye Spray So Shall Ye Receive

It is not a question of how much and how often you spray, but how thoroughly you spray. Spraying enabled the Hood River growers to produce the Hood River apple, now famous the world over for its delicious taste and high market value. Why can not you, if you have good fruit land, produce fruit as good as that produced elsewhere by other growers? Make a trial of the methods employed by those growers whose produce is now bringing the highest price; spray thoroughly with the proper mixture at the proper time, and don't forget that the result will depend largely on the pump you use.

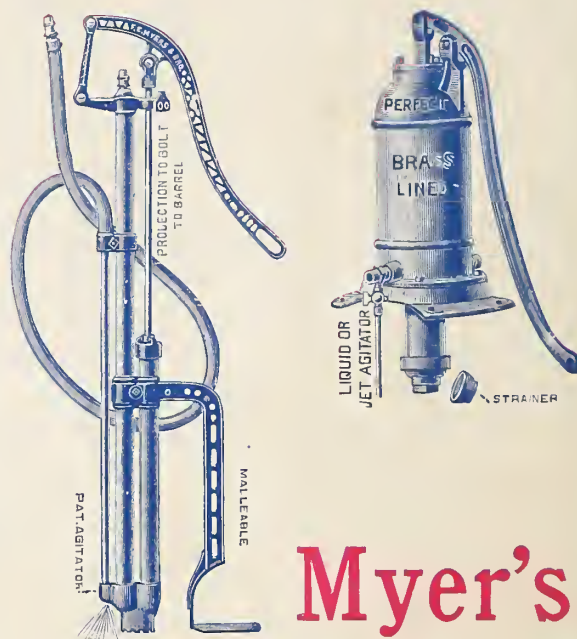
*Your pump may  
make your work  
extremely hard  
and almost useless  
or it may make  
the work easy  
and productive  
of great benefit*



a hundred or a thousand trees. The Myers is the line of exclusive features, manufactured by people who are foremost in the manufacture of Spray Pumps. They have covered their pumps by patents which prevent others from getting out pumps similar to the Myers, therefore the Myers line stands today, as it has in the past, the most complete and most reliable on the market.

FRUIT GROWERS' CATALOGUE SHOWING FULL LINE  
OF SPRAY APPARATUS FREE UPON REQUEST

**Mitchell**  
LEWIS & STAYER CO.



## Myer's SPRAY PUMPS

Cover the needs of every orchard—it is a line intended to meet every condition. The man who has but one tree can find in the Myers line the pump which is best adapted to his service, as well as the man who has

PORTLAND, OREGON

SPOKANE  
Washington

BOISE  
Idaho

SALEM  
Oregon

AGENCIES EVERYWHERE